

**A
TEXT BOOK
OF**

DESCRIPTIVE MEDICINE

WITH

**CLINICAL METHODS AND
HOMOEOPATHIC
THERAPEUTICS**

***K.L. KICHLU
&
L.R.N. BOSE***

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BY
K. L. KUMAR, M.D., F.R.C.P.



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FOREWORD

SCRIPT

By

K. L. Kichlu & L. R. N. Bose

**SECOND EDITION
REVISED AND ENLARGED**



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FOREWORD

What sort of text-books should we have for the students of Medicine, studying in the Homoeopathic medical colleges in India ?

The answer, of necessity, lies within the dictates of the syllabus of studies prescribed for the subject in the Diploma and Degree courses of this science. It happens that this syllabus has all along followed the pattern evolved for the medical colleges of modern medicine since the time of Dr. Hahnemann and his illustrious followers in the West and the U.S.A. This is because the practice of Homoeopathy in these countries has been strictly restricted to practitioners who first qualify in modern medicine and then opt for Homoeopathy. Even the famed Homoeopathic colleges in the U.S.A. carried on with the same curriculum, as this was demanded by the law of the land.

In the case of these converts, the saving grace was that intellectual obstacles to the practice of Homoeopathy, the tenets of which run contrary to those studied in modern medicine, were overcome by the force of their new convictions. It must also be noted that this American phase did produce at least a few books like the one by Custis & Raue's Pathology which listed disease-wise homoeo-therapeutics, after the traditional disease descriptions.

In India, on the other hand, a radical departure was demanded and conceded by the setting up of schools for Homoeopathy, with the laudable object of instilling "the holistic approach" from the beginning of the studies. It was indeed a great opportunity, but it has proved absolutely non-productive. For, when it came to the laying down of the syllabus, no change at all was made from the old pattern, thus defeating the very purpose of having separate colleges. The reasons for this stalemate have been two-fold. First, the absence of any guide-lines for a change. Second, the fact that for the purpose of enactment of legislation, recognition of the courses, affiliation of colleges, grants of funds, etc., the technocrats

in authority were all allopathically trained and minded persons, and it was deemed both expedient and inevitable that the plan of studies as prescribed for modern medicine be adopted *in toto*, with the addition/substitution of Homoeopathic subjects as mere adjuncts. The result : the subject of treatment of diseases continues to be taught diseases-wise, by allopathic teachers, from the same text-books and in the same way, as in the schools of modern medicine. Even the division of diseases remains the same., viz, Medical and surgical, even though some of the so-called surgical diseases are quite amenable to homoeopathic medical treatment and could legitimately be included under the subject of Medicine.

No wonder that the consequences have been quite disastrous. The constant study of Medicine on nosological basis, taught by those who have a supercilious attitude to the "holistic approach", vitiates the very foundation of the process of making a homoeopath, from out of the student, who is in addition deprived of the force of conviction which a "conversion" from the old school generates. The homoeopathic student thus hampered with the blinkers of disease names, minus the motive force of conversion, is a dismal failure in practice, more a liability than an asset.

It would thus be clear that the real solution of the problem posed at the outset should logically lie in devising a more imaginative and original syllabus, bastioned with appropriate text-book material. This is easier said than done, for it is a much bigger issue, beset with many remote ramifications. But this much is certain that the problem has haunted and continues to haunt the conscience of all those who are associated with the planning of homoeopathic education in India.

Strangely enough, no body thought of the lesser solution, that of writing a text-book of modern medicine, with the incorporation of homoeopathic therapeutics, so that the homoeopathic students could at least have the whole material in one cover with bits of homoeopathy tucked in as bonus in the margins.

What about the text-books of the erstwhile American Homoeopathic Colleges, such as the ones mentioned earlier ?

A little deliberation would reveal that the classification of diseases in the modern medical sense, the etiology, the symptomatology, etc., which is dependent upon newer findings in related fields of other sciences, is a continuous exercise, and hence books of Medicine written even five to ten years back are considered obsolete material in some respects. Therefore, the American homoeopathic books published a few decades ago, the reprinting of which has otherwise proved a veritable gold mine in India have come a cropper as far as the text-books of Medicine are concerned.

Realising the needs, Dr. K.L. Kichlu, though by no means a scholar, decided to fill in the vacuum, single handed, at the ripe age of 74. By going through voluminous text-books and extracting the essentials according to the homoeopathic syllabus, he set out to compile a modern text-book of Medicine, with the interpolation of excellent therapeutic hints culled from the homoeopathic literature. The mere act of copying almost 2000 pages in long hand was in itself a commendable and praise-worthy task.

The first few printed pages of the first edition were seen by me, and at my suggestion, the proof corrections were improved. The price of the book was also kept very low, so that instead of becoming a dead stock, the first edition was all sold out.

For the second edition, a complete revision of the etiology, symptomatology, etc., of many diseases, without altering or changing the basic plan of the book, was suggested so as to update with the material contained in the modern text-books. This task was again undertaken and completed by Dr. Kichlu at the age of 89, and the result, the present work, is for the readers to judge.

It is hoped that in this revised version, the book will more amply answer the requirements of the students, and that mistakes will be far fewer.

Thanks are due to my friend Dr. B. M. Verma, M.B.B.S., a young practitioner in South Delhi, for going through the Mss.

The publishers hereby welcome the pointing of mistakes, if any, and suggestions for improvement of the book.

B-1/24, Malviya Nagar,
New Delhi-110017.

H. L. Chitkara

PUBLISHER'S PREFACE TO THE SECOND EDITION

We feel honoured in presenting to the profession and students of Homoeopathy a fully revised and enlarged edition of this most demanded book in compliance with the request of many physicians and the students, studying in various Diploma & Degree courses. The first edition published in 1975 by the author himself was sold out in no time by our sole-selling agents, M/s. Harjeet & Co. The previous edition was having a few printing mistakes and there was also the necessity for a complete revision of the etiology, symptomatology etc. of many diseases. So we requested Dr. K.L. Kichlu to revise the book and to provide latest material on the subject contained in the modern text-books.

We wish to express our most grateful *appreciation* for the assistance given by Dr. H.L. Chitkara in the improvement of this edition. We hope the present edition will be able in meeting the requirements of the students and their valuable suggestions will help us in improving the subsequent editions.

New Delhi
13th May, 1979

—THE PUBLISHERS

PREFACE TO THE FIRST EDITION

We take great pleasure in presenting a low-priced edition of this book to the profession in general and the students, studying for the courses of the Diploma and Degree examinations in various homoeopathic colleges of the Indian Union in particular.

The subject matter of the book has been drawn from and planned on the lines of the latest books of standard authors published in India and abroad in the years 1971 to 1973. The description has been sub-divided into convenient headings, like— (1) Definition, (2) Aetiology, (3) Clinical Features (Symptoms & Signs), (4) Pathology, (5) Diagnosis (Clinical & Differential), (6) Complications ; (7) Prognosis and (8) Treatment, both remedial and curable, including dietary and prophylactic. The homoeopathic remedies, both palliative and constitutional, have been included as suggested by great masters like Dewey, Hering, Clarke, Boerick, Allen, Custis, Farrington, Nash, Sircar and Majumdar. We have broadly followed the syllabus, prescribed by the Council of Homoeopathic Medicine, West Bengal in 1974, for the Diploma Examination and that prescribed by the Indian Union for the Degree Examination.

It is hoped that the book which covers about 900 pages will be found useful and dependable both by the practising and student physicians. As this edition is published on a charitable basis, the price fixed has been kept low to enable the interested students to buy a copy for their use.

On the suggestion of some friends, we have included a chapter on "Laboratory Methods" with the co-operation of Dr. M.R. Lahiri, an eminent pathologist of Calcutta.

We would like to express our deep debt and gratitude to the following doctors of the two Schools for technical advice and constructive criticisms from time to time :

- (1) Dr. D.N. Shivpuri, M.B.B.S., M.D., F.C.C.C. (U.S.A.),
F.I.C.A.,

Former Head of the Department of Clinical Research, now
Head of the Deptt. of Allergy and Applied Immology,
V.P. INSTITUTE, UNIVERSITY OF DELHI.

- (2) Dr. V.N. Chadha, M. D. (Cal.).

- (3) Dr. M. R. Lahiri. M.B.B.S. (Cal.), D.T.M., P.C.P., a leading
pathologist of Calcutta.

- (4) Dr. J.N. Sircar, M.D.D.T., D.R.C.O.G. (London), M.D.
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We are also thankful to Shri Farhat Said Khan, the late Ram-
swarup Dalmia, Shri B.D. Daga and the advertisers for their
keen interest and help in the preparation of this low-priced book, as,
without their special efforts, it would have been difficult to bring it
out.

Calcutta
August 1975

L.R.N. Bose
&
K.L. Kichlu

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CHAPTER—I

SECTION—1

*DISEASES DUE TO INFECTIONS AND INFESTATIONS
(PROTOZOAL, BACTERIAL, VIRAL, SPIROCHAETAL
AND METAZOAL INFECTIONS AND OTHERS)*

SECTION—2

*DISORDERS DUE TO PHYSICAL AND CHEMICAL AGENTS
(HEAT STROKE, HEAT EXHAUSTION AND HEAT
CRAMPS ; POISONING) INCLUDING FOOD
POISONING AND ELECTRICAL
INJURIES.*

I

Infections

SOME ASPECTS

Certain acute specific infections have been grouped under the generic term "fevers". A 'fever' originally indicated an illness, in which raised temperature and quickened pulse were prominent symptoms.

It was later realised that these symptoms were, amongst others, the reactions of the patient to a specific infection.

An infection may thus be defined as an invasion for the establishment and growth of the micro-organism which had taken birth in the tissues of the susceptible host and had given effect to, what we termed 'fever'. These organisms may be either a specific virus, bacterium or a protozoon. In the term 'fever' is implied the property of infectivity and the possibility of transmission of the inflicting organism by one person to another.

The infection is commonly conveyed directly from one person to another except in the enteric group of diseases, where infection is spread by articles of food or drink, and in certain other diseases e.g. plague, typhus and malaria, transmitted by the medium of infected insects, the usual mode being by spray or droplets, projected through short distances by sneezing and coughing. A minor role is played in the spread of infections by utensils, bedding, clothes and letters etc.

Incubation period :

Following infection of a person with a sufficient dose of the infective agent, there is a period which elapses before the first symptom or sign of the disease appears. This is known as the 'incubation

period' and its duration varies with the infection *e.g.*, diphtheria—one to four days, measles—about ten days, and so on.

Dr. Davidson has analysed the sources of infections in the following manners.

Sources of infection :

(1) *Human sources :*

(a) Patients in the incubation or during convalescent periods.

(b) *Carriers.* Persons who harbour (i) in good health organisms, such as, *Strepto-Pyogenous Stapho-pyogenes* (ii) during convalescent period, these very persons who have harboured these organisms for many years.

(2) *Animal reservoirs.* Certain diseases of animals may afflict men, *e.g.*, in Q. fever, bovine tuberculosis, worm infections. Others are spread by bites of animal vectors.

(3) *Soil.* The organisms causing tetanus are found in the soil.

Spread of infection :

The infection is spread in a variety of ways :

(1) *Airborne.*

(a) *Droplet.* During talking, sneezing or coughing the minute droplets are projected for several feet.

(b) *Dust.* Dry infected droplets sometimes survive for a long time and sometimes contaminate clothing, handkerchiefs, bedclothes, carpets and floors of buildings and may be inhaled or infect the wounds.

Spread of infection is airborne in diseases of throat & respiratory tract.

(2) *Ingestion.* Contamination of food and drink by human faeces is of the greatest importance. This may be through the soiled hands of the servants, in the distribution of food and milk or through the agency of flies.

(3) *Direct invasion.* By skin diseases, conjunctivitis, venereal diseases, hook-worms, and urinary infection.

(4) *Contamination of wounds.* Airborne organisms may infect wounds through dust and dirt.

(5) *Inoculation.* This may be through imperfect sterilization of instruments.

Prevention of infection :

These measures depend upon the knowledge of sources and modes of spread. Therefore, the disease can be eliminated by isolating the human and animal sources of infection, if vigorously pursued. It may also be necessary to disinfect or destroy the excreta or to sterilize the clothing and utensils of patients or carriers and to take special precautions against attending servants handling food and other materials.

Individuals living in and coming from epidemic and infected areas should be placed in quarantine for about 40 days or 2 days more than the maximum incubation period of the disease in question. Besides, homoeopathic prophylactics may be used as prescribed by the doctor.

Fever (Pyrexia) or elevation of body temperature is a common symptom of most infections. In infections chiefly pertaining to bacteria generally, the temperature rises to a few degrees and then remains constant. Some infections are marked by rigor in which the patient feels chilly and is so shivering that he needs to be covered. This stage lasts for 15-30 minutes. At the end of this period, the cutaneous cells start to dilate, the skin flushes, its temperature rises, the patient begins to feel hot and calls for bed clothes to be removed. Subsequent events take one of the two courses. If the rigor initiates a period of sustained fever, the skin remains hot and dry and the temperature elevated. In other instances (e.g., malaria), after about an hour, the sweating starts, and rapidly becomes profuse, and the temperature falls precipitously, until it reaches normal.

Hyperpyrexia is defined as a steadily and rapidly mounting body temperature. The skin is hot and dry. There is apathy,

followed by stupor, coma and finally by peripheral circulatory failure and death. As a result of infection alone, hyperpyrexia is of great rarity in temperate climates.

Certain traditional adjectives are used to describe types of fever or pyrexia. A *continuous fever* is one in which the temperature is continuously raised above normal and varies less than 1.5°F during 24 hours. *Intermittent* is one in which the temperature falls to normal or below at least once in the day, and *remittent*, one in which the diurnal variation exceeds 1.5°F , but the temperature does not reach normal.

In most infections, the temperature is higher at night than in the morning. Rarely two temperature peaks occur in 24 hours. Periodic fever is less common. Respiratory frequency normally increases by 2 or 3 per minute for each degree rise of temperature. The pulse frequency increases by 8 beats per minute in adults and by 12 to 15 in a child. Urine is highly coloured and contains traces of protein.

II

Protozoal Infections

MALARIA

Definition :

Malaria is a febrile illness caused by *sporozoa* of the genus *Plasmodium*, of which four species infect man. The parasites are conveyed to man by the *female anopheline mosquito*. The features of intermittent fever, anaemia and enlargement of the liver and spleen are generally present.

Etiology :

The four recognised species of malaria parasites pathogenic to man are (i) *P. falciparum*, (ii) *P. Vivax*, (iii) *P. malariae* and (iv) *P. ovale*.

P. falciparum, causes a more continuous fever, called, 'malignant tertian'. *P. Vivax* produces a benign tertian malaria, in which the fever rises on the first and third days and continues with this periodic character. *P. malariae* produces a quartan type of fever with apyrexial interval of two days. It is much less common. **P. ovale**, called ovale tertian malaria, is much uncommon. The fever is similar to that of *P. Vivax*.

All these forms of malaria are transmitted in nature by the females of some species of *Anopheles* mosquito. The disease may also be transmitted from man to man by the passage of infected blood and is occasionally transmitted across the placenta. It can be induced artificially by infective mosquito bite. The life cycle of the parasite begins in the female mosquito, when she ingests human infective blood containing the sexual forms of the parasite (gametocytes). In the stomach, the male gametocytes liberate flagella, which fertilize the female cells. The resultant fertilized cell penetrates the stomach wall of the mosquito and there develops into a cyst in which the infective forms (sporozoites) appear. These eventually reach the insect bite. The process takes 7 to 14 days and the mosquito remains infective for the rest of its life.

Signs and Symptoms :

(a) **Infections with P. Vivax and P. Ovale** (benign tertian malaria). The incubation period varies and is about a week or ten days. It may sometime be longer.

(1) There are often prodromal symptoms of headache, severe backache, limb pains, anorexia, nausea and sometimes vomiting. In relapses, the prodromata are usually absent and the attack develops quickly.

(2) The onset of the *primary attack* is associated with the rise of temperature (up to 101°F or higher), usually accompanied by shivering and complaints of coldness, but not rigor (a sudden chill accompanied by severe shivering.)

(3) For the first week or a few days of the primary attack, the fever is irregularly remittent (103° to 105°F), but without clear perio-

dicity. In a vast majority of cases, the periodicity follows and continues for about 6 weeks to 3 months, if the patient is untreated.

(4) Paroxysms are more common in the day than in the night and occur in the afternoons rather than in the mornings. There are typically three stages, *the cold, the hot and the sweating*. *The cold stage* covers the initial sharp rise of temperature to febrile levels. The stage lasts usually for an hour or an hour and a half, and consists of cold, shivering and finally rigor. The temperature rises rapidly, but the skin remains cold, dry and pale. The pulse is fast and thready. Blood pressure is raised. Nausea and vomiting develop, as the peak of fever is reached.

(5) *The hot stage* replaces the cold one, the patient now feels hot and feverish; rigor stops, the skin flushes, the pulse is full and bounding; blood pressure falls, nausea and vomiting increase. The patient is restless and excited and may become delirious. The hot stage lasts longer than the cold stage.

(6) *The sweating stage*, then follows. Profuse perspiration takes place and the temperature falls, within an hour or more to normal or below. All other symptoms also disappear and patient feels comfortable.

(7) The patient feels well until the next paroxysm develops at its due time.

(8) In many cases the symptoms of *P. Vivax* start with a period of several days of fever before the development of classical bouts of fever every other day.

(9) Herpes simplex, usually round the mouth, is a common accompaniment of malaria.

(b) **Infection with *P. Malaria*.** Basically the clinical picture is similar to that of *P. Vivax* but there are some differences. These are :

(1) The incubation period may extend to 3 or 4 weeks and sometimes months.

(2) The onset may be insidious.

(3) The attacks of fever with shivering (with or without rigor) usually occur every 4th day *i.e.* approximately after 72 hours.

(4) The paroxysm often lasts longer than in *P. Vivax*.

(5) The sweating stage may be followed by some prostration, and

(6) With this the infection may persist for many years without producing any symptoms.

(c) **Infection with *P. falciparum*.** *Falciparum* malaria may be complicated or uncomplicated :

(1) The incubation period varies from 8 to 15 days.

(2) Prodromal symptoms, especially severe headache and attacks of shivering occur in the few days just prior to the attack.

(3) The onset may be clear-cut or insidious. Usually the onset is brisk and the patient develops moderate fever with flushed or pale skin which is often damp with sweat.

(4) He complains of headache, bone and joint pains, particularly backache ; anxiety and confusion are common with frequent prostration. The disease may easily be mistaken for influenza.

(5) In severe cases, there may be maniacal outbursts with excitement, and light or deep coma may develop.

(6) Fever is moderate, remittent or intermittent, for the first few days, and may continue throughout the illness.

(7) The sweating stage may not be clearly defined. The skin may remain moist throughout and the feeling of relief at the end of the paroxysm is usually absent, as the temperature may remain above normal.

(8) Anaemia is often severe.

(9) Nausea and vomiting are common from the onset.

(10) The spleen enlarges rapidly and is usually palpable within 10 days of the onset.

(11) The liver is always affected in this type of malaria.

The *complicated Falciparum malaria* is usually called *Pernicious malaria*. The clinical signs and symptoms relate to

the central nervous system, and so neurological involvement usually appears during the course of an untreated attack, *e.g.* the patient becomes drowsy and passes into coma. The pupils are often contracted, and deep reflexes may be abolished or exaggerated, muscular twitchings, odd movements of the head and neck and convulsions may be prominent, especially in children. Incontinence of urine and faeces may develop. Accompanying these symptoms, there is usually, but not always, remittent fever and some anaemia. Some patients develop hyperpyrexia (about 106°F). One very important complication is the development of acute circulatory failure or shock. Because occasionally it develops without fever, it is sometimes known as "*Algid malaria*". If this condition is not recognised and treated, the patient will die immediately.

Blackwater fever : (*a complication*)

In certain cases of *P. Falciparum* infection, acute haemolysis occurs with both haemoglobinaemia and haemoglobinuria. The syndrome is recognised as, "*Blackwater fever*". There is some evidence of the truth, that irregular suppression by quinine is particularly predisposing to an attack of blackwater fever. The haemolysis leads to severe anaemia which develops suddenly ; the urine is dark-brown or black, if the reaction is acid, and red, if the reaction is alkaline or neutral. The urine, during the passage of the pigment, contains large amounts of sediment and protein, both of which clear in the non-haemolytic phases. The volume of urine is low and anuria may develop at any time. Clinical diagnosis is made on the history and the presence of haemoglobinuria.

Diagnosis of Malaria :

If a patient is in a malarious locality or has recently left such an area, malaria should be considered. A history of periodic fever, associated, perhaps, with an enlarged spleen and anaemia, is very suspicious. Well-stained blood films, thick and thin, should be examined, at frequent intervals, if necessary. *P. Falciparum* parasites may be very scanty. It may be very difficult to find parasites, especially in those patients, who have recently taken ineffective doses of an anti-malarial drug.

Treatment :

General : (i) Have liberal spraying of the houses with D.D.T.

(ii) Close down the breeding places of the mosquitoes.

(iii) Use mosquito net at bedtime.

(iv) Have regularity of bowels.

(v) Use better quality of food.

(vi) Avoid severe exertion, exposure to heat, and cold and any intercurrent infection.

(vii) The food which is easily digested and prevents constipation during remission periods, recommended.

Curable :

In all malarial areas, as soon as one feels unwell, every person should take a dose of *China* 30. If there is no improvement within 12 hours, he should take *Ipecac* 30, and after another 12 hours, *China* again. If this course does not prevent the recurrence of fever, select one of the following remedies according to symptoms :—

(1) **Ipecac.** Give a dose of a low potency after the attack of the three stages is over, and repeat it every 3 or 4 hours, until the next day before the second attack comes on. If there is no attack, no dose should be given on that day. But on the following day, give a dose a few hours before the expected time. If still the attack returns, change the remedy according to symptoms and administer it after the attack is over. Repeat it every 3 or 4 hours, till the time of the next attack. Remember that *Ipecac.* has internal chilliness, practically no thirst in chilly stage, but plenty of it during the fever stage. The tongue is clean or slightly furred. There is vomiting and nausea, and oppression of chest also.

(2) **China.** has the attack preceded by nausea ; much appetite, headache, agitation, palpitation or sneezing, thirst during the sweating stage or, sometimes, between all stages ; sleeplessness, great weakness and sallow complexion.

(3) **Arsenicum.** To be given when three stages are not distinct, or there is internal chilliness with external warmth, or when

there is no sweating, great prostration, burning pains in stomach; pains all over the body, anxiety and restlessness, much thirst, but drinking little at a time, nausea or sickness, bitter taste, violent headache, which increases during the attack.

(4) **Bryonia.** When the tongue is much furred; bitter taste, belching; sickness of the stomach; constipation or diarrhoea; much thirst or heat before the chills, red cheeks in cold stage; yawning and stitches in the side during heat.

(5) **Ferrum :**

- (i) For symptoms resembling *China* and also for rush of blood to the head with throbbing in the neck and temples.
- (ii) For swelling around eyes, pressure in the stomach and abdomen after eating food, tension of abdomen, shortness of breath, weakness of limbs and swelling of feet.

(6) **Pulsatilla :**

- (i) When the slightest disorder of the stomach brings on the attack.
- (ii) is specially indicated in the absence of thirst during the entire fit, or thirst only during the hot stage.
- (iii) Heat and chill at the same time, bitter taste in mouth, or sour vomiting of phlegm or bile, the attacks coming on in the evening; the patient complains of chilliness all the time.

(7) **Nux Vomica :**

- (i) When the attack commences with great debility with a desire to lie down,
- (ii) giddiness, as if drunk,
- (iii) cramps in the muscles of the abdomen or the calves of the legs,
- (iv) alternate heat and chills or heat before the chill, or heat externally and chilliness internally, or *vice versa*,
- (v) desire to be covered even during the hot and sweating stages,

- (vi) thirst and anxiety during the hot stage,
- (vii) constipation.

(8) **Natrum Mur** : Is one of the best remedies of malaria. It corresponds to cases of psoric origin and is useful in badly treated and inveterate cases. The chilly stage is continuous, heat is moderate with headache, and perspiration either wanting or excessive and weakening, but relieving the headache. The face is yellowish-grey and the spleen and liver are enlarged. The typical *Nat. Mur.* cases have chill commencing at about 10 a.m. with great thirst and pains in the bones and in the back, headache, and debility with shortness of breath. If blisters form on the lips, or corners of the mouth, this remedy is certainly indicated.

(9) **Eupatorium Perfoliatum**. Bone-pains and vomiting, as the chill passes, are two characteristics of this remedy. The chill is apt to occur in the morning of one day and in the evening of the next, preceded by bitter vomiting and thirst. The chill commences in the small of back and is accompanied with a sense of pressure over the skull cap. In these paroxysms, the liver is at fault.

(10) **Cedron**. Great regularity and violent symptoms indicate this remedy. Congestion to the head is a marked symptom during remission of fever and debility.

(11) **Gelsemium**. It suits malarial conditions in children. The chill runs up the back or starts from the feet ; there is a bruised feeling all over the body. The patient wants to be held during the chill to prevent shaking. The time of chill is about the middle of the day. Drowsiness, dullness, and dizziness are characteristic indications. There is almost no thirst.

(12) **Chininum Sulphuricum**. Give 2 grain doses of this remedy in 1X potency every two hours. The chill starts in the evening with slight or violent thirst. After the sweat stage, there is much weakness.

LEISHMANIASIS

This term is used for diseases caused by infection with protozoa belonging to the genus *Leishmania*. The infection may be general or localised. General infection is caused by *Leishmania donovani*

and gives rise to *visceral leishmaniasis* or Kala-azar. Localised infections occur in the skin producing the *oriental sore*, caused by *Leishmania tropica*, or both in the skin and the associated mucous membranes, producing the clinical picture of *muco-membraneous leishmaniasis*, caused by *Leishmania brasiliensis*. The parasites are all transmitted to man by the species of the sand-fly *Phlebotomus*.

KALA AZAR

(*Visceral leishmaniasis*)

Definition :

Kala-azar is a chronic infection, caused by the parasite *Leishmania donovani*, with characteristic features of an irregular fever of long standing, progressive enlargement of both spleen and liver, decreased white corpuscles in blood, great emaciation, and darkening of skin. It is also called *Dum Dum* fever or *Black sickness*.

Etiology :

The causative agent, which is a variety of protozoa, was discovered by Leishman and Donovan independently. Hence it is named *Leishmania donovani*. The incubation period is usually one or two months, but exceptionally it may be prolonged up to 10 years.

It is transmitted into the human blood by the female sand-fly named, *Phlebotomus*. There are several species of this sand-fly which transmit this infection.

The sand-fly at first bites an infected person, who gets infected and carries the venom to the next victim who is healthy. It has been found that the parasite, after entering into the stomach of the sand-fly, rapidly develops and fills its stomach, buccal cavity and the mouth. At this stage, if the sand-fly bites a healthy human being, it discharges these parasites in his tissues and thus transmits the infection. There are two main types of diseases the *Mediterranean* and the *Indian*. The Mediterranean disease is found most commonly in infants and young children and does not occur as epidemic. The *Indian form* is seen in older children and young adults. It commonly occurred in epidemics, but has now practically disappeared.

Symptoms and Signs :

(1) The onset which is insidious may be acute with fever appearing irregularly.

(2) The remarkable aspect of the clinical picture is that the patient resents being put to bed and does not feel as ill as he is.

(3) The first signs are progressive enlargement of spleen and liver which eventually cause considerable discomfort.

(4) The spleen is palpable usually in the 2nd month of illness.

(5) There is early development of leucopenia.

(6) The fever is remittent or intermittent often with two or three sharp peaks during the day. The pulse rate is fast and the blood pressure is usually low (100 mm. Hg. or lower).

(7) In some cases the spleen may be grossly enlarged without a corresponding increase in the size of the liver.

(8) Jaundice sometimes appears but not before the third month of the overt disease.

(9) In dark-skinned people patchy hyper-pigmentation occurs particularly on the face.

(10) The lungs are commonly involved, showing signs of bronchitis or broncho-pneumonia, diarrhoea is also common.

(11) In chronic cases, the disease may last one to two years or longer.

Pathology :

Parasites are found in all parts of the body. The decrease in LEUCOCYTES is a useful diagnostic sign. The white bloodcount is below 4,000 per cu. mm. Blood sugar is reduced and sometimes is as low as 0.05 per cent. In urine, there is always a trace of albumin and it is often concentrated. The spleen is enlarged grossly. In most cases it is soft and pulpy and is seldom hard and fibrous, like the chronic malarial spleen. The liver is also usually enlarged. It is also soft, but not as soft as the spleen. There is some decrease in pigmentation in the cells of the lower layers of the skin, causing a deep orange-red colour on the outer surface.

Complications :

(i) Septic infection in the form of multiple boils ; septic tonsillitis and mastoid abscess.

(ii) Dysentery, diarrhoea, jaundice and intestinal ulcers.

(iii) Haemorrhage from nose and gums.

(iv) Bronchitis, broncho-pneumonia, pleurisy and tuberculosis.

(v) Ascites and dropsy.

Diagnosis :

It is a common practice to examine microscopically smears of bone marrow and of blood for identification of the parasite. Examination of blood will also show some anaemia and characteristic leucopenia and granulocytopenia.

Kala-azar has to be differentiated from :

(1) *typhoid fever* and *brucellosis* (undulant fever) by agglutination tests and culture of blood.

(2) *Malaria*, by examination of blood films.

Prognosis :

In the absence of any treatment, 75 per cent of patients die ; for spontaneous recovery is rarely possible in this disease. Good treatment ultimately cures 98 per cent of patients, unless complications, with severe intestinal symptoms and cirrhosis with ascites occur.

Treatment : Preventive :

Cracks and dark corners in walls and floors, rubbish and vegetation in and around houses should be eliminated. D.D.T. spray is effective in killing sandflies which bite mostly after sunset. Liquid diet should be used.

Remedies :

Infantile Kala-azar. Ars. Alb. is strongly recommended. The colloidal preparation of the oxide of antimony homoeopathically will be an effective remedy. Other remedies specified under "*Malaria*" will also be helpful.

TRYPANOSOMIASIS (AFRICAN)

Definition :

Trypanosomiasis or sleeping sickness is a disease caused by infestation with species of the protozoal organism *Trypanosoma*, a genus of parasitic protozoa, characterised by irregular or sudden high fever with any gland disease and reddened skin rashes.

Etiology :

The disease which is unknown in India is found in many parts of Africa. It is caused by *Trypanosoma gambiense* or *Rhodesiense*. It is conveyed to the human being by a particular kind of fly, known as Tse-Tse fly. The fly bites first an infected bird or animal. In 3 to 7 weeks, the fly becomes infective and bites a human being and transmits the infection. A bite by Tse-Tse fly is frequently painful, but if the infection is introduced, the site of the bite may again become painful and swollen about 10 days later.

Symptoms and Signs :

In gambiense infections, the lymphatic glands in the lower part of the neck and the mesentery are enlarged ; the spleen and liver are moderately enlarged and may become palpable. In fair-skinned persons, skin rashes appear on the front or back of the chest. Irregular intermittent fever with morning remission continues for several months. Other symptoms are headache, tremor of the tongue and sometimes the hand also. The pulse is quick and feeble ; respiration moderately quick. There may be oedema of feet, legs and face.

The central nervous system is invaded in the absence of any treatment. The signs shown in this direction are headache and changed behaviour, insomnia at night and somnolence by day, mental confusion and eventually tremors, pareses, wasting from inanition, coma and death. The earliest signs of this invasion of the nervous system is an increase of protein and the cells in the cerebrospinal

fluid. Sometimes the gambiense infections run an acute course resembling the course of the rhodesiense type of course.

In rhodesiense infections, the enlargement of lymph nodes is not a prominent feature. Fever is higher and more consistent than in gambiense type, so that the patient develops effusions and signs of myocarditis. In untreated cases, death may ensue from toxæmia or heart-failure.

In chronic long-standing cases nervous symptoms appear, such as, emotional instability, sleepiness, laziness and lack of concentration. The speech becomes slow and halting. Dribbling of saliva and muscular weakness follow.

Prognosis :

Mild cases have a favourable outlook, but when the sleeping sickness stage reaches, the chances of recovery are doubtful.

Treatment :

The chief remedies for "Sleeping Sickness" are :

(i) Arsenic Album

(ii) Atoxyl (sodium Arseniate 3x).

Remedies for the febrile stage and lymphatics may be selected, according to indications, from :

(i) Aconite

(ii) Belladonna

(iii) Arsenic Alb.

(iv) Rhus Tox.

(v) Gelsemium

(vi) Bryonia

(vii) Nux. Vom.

(viii) Ipecac.

(ix) Pulsatilla.

Bacterial Infections

SEPTICAEMIA AND PYAEMIA

Definition :

Septicaemia is a condition of toxæmia, in which the invading bacteria enter the circulation and multiply in overwhelming numbers in the blood stream. When the number is, however, not large, the term "bacteraemia" is used.

Pyaemia, however, is a condition of septicaemia in which it is associated with the formation of abscesses, scattered throughout the bodily organs and tissues.

Etiology :

The genus of bacteria, named streptococcus and also staphylococcus, are the causative agents of septicaemia and pyaemia. The site of infection may be a wound or some other breaches in the skin, or the mucous membrane. Sometimes, the site of infection may not be obvious. In such cases, the infection takes rather a severe turn. The source of infection is either from outside the body, or an existing focus in the mouth. (perhaps, due to the extraction of a tooth) pharynx, alimentary canal, liver, kidneys or the uterus after child-birth or abortion. It can also be the result of a surgical operation. Exciting causes could be violent exertions of the body and the mind. The chief cause of staphylococcal septicaemia is sometimes the indiscriminate use of antibiotics, especially of penicillin.

Symptoms :

Both these affections start with a violent shaking chill, followed by heat and high fever. Prostration, headache, sleeplessness delirium, coma, nausea and vomiting are common symptoms. Appetite is lost, thirst increases, stool is irregular with a tendency to a most offensive diarrhoea. Cough, dyspnoea and other respiratory complications sometimes exist. Sometimes, there are profuse sweats, which are attended with miliary eruptions on the skin.

Signs :

Temperature rises to 104° or 105°F with rigor. If it drops, it is fairly rapid. Pulse is quick, blood pressure low, respiration often hurried ; abdomen is distended and signs of intense toxæmia are often present ; the spleen is enlarged.

Complications & Prognosis :

Some cases are mild and the temperature comes down within a week, but others may continue for long and have complications and end fatally. The complications may be broncho-pneumonia, septic endocarditis, septic meningitis, multiple boils, abscesses in the spleen, liver, kidneys, bones, or joints.

Diagnosis :

The main diagnostic signs are :

(1) a positive blood picture,

(2) clinical picture, such as, toxæmia, a wide variation of temperature in a few hours, rapid anaemia, rigor, sweat, and leucocytosis. Remission of temperature may occur several times during a day.

Treatment :

(1) **Rhus Tox.** When there is redness and soreness at the point of infection, Rhus Tox is the remedy. Additional symptoms are chilliness, dry tongue, diarrhoea and restlessness. Septicæmia with rheumatic affections of joints and muscles will readily yield to this remedy.

(2) **Arsenicum Album.** This remedy is frequently indicated in septic conditions of the blood, when there is anguish, restlessness, local and general burning, vomiting, great prostration and putrid discharges.

(3) **Lachesis.** Most useful in localised pyæmia, gangrene and carbuncles, provided the skin is blue, and sensitiveness to touch, great prostration and scanty putrid discharges exist. It differs from *Arsenicum* in having no restlessness.

(4) **Anthracinum.** When there is septic inflammation and ulceration with intolerable burning pains which are severer than those of Arsenicum.

(5) **Echinacea.** Suitable for pyaemia with dull aching in head and extremities. Toxaemia by absorption readily yields to this remedy. Infections spreading from uterus are chiefly indicated, other symptoms being tympanitis, sensitive abdomen and putrid foul discharges.

(6) **Pyrogenium.** Frequently used in septic fever after child-birth with intense restlessness, coldness and chilliness, profuse hot sweat without relief. This medicine has a good clinical record.

(7) **Baptisia.** The chief symptoms are great putrid discharges, heat all over, muscular soreness of the body, restlessness, great debility and prostration.

(8) **Arnica.** Pyaemia with anaemia, sore bruised sensations, loose stools, foul odours, mental restlessness.

ERYSIPELAS

Definition :

Erysipelas is an acute infection of the skin, caused by the bacteria streptococci of Lancefield group A. The face and the scalp are involved in majority of cases and, less frequently, the body and the extremities. The disease is characterised by localised redness, having a raised margin and swelling with fever and other constitutional symptoms, of which toxaemia is most important.

It is an acute local haemolytic infection. The incubation period is one to seven days.

Etiology :

The infection enters through any skin abrasion or an ulcer. The abrasions in and around the nares and those from ill-fitting shoes or cracks between the toes are responsible for erysipelas of the face or legs respectively. It may also follow a surgical operation and spread along the lymphatics of the skin and the tissues beneath the skin. All ages and both sexes are affected. A large number of cases are seen in the winter and early summer.

Symptoms :

Like other streptococcal infections, erysipelas, particularly of the facial type, may start with general malaise, shivering headache and vomiting, twenty-four hours before any localised signs appear. The temperature of 104° to 105°F, with evening aggravation may persist for a week and then approach to normal. The sleep is restless and full of dreams. Sometimes, the patient is delirious. The onset is abrupt with local heat and pain in the infected region of the skin together with a general systematic upset.

Signs :

In the facial type which is generally preceded by cold or rhinitis, the lesions appear about 24 to 36 hours after the advent of fever as a well-circumscribed, small, reddened, elevated area of the skin with a shiny surface. The inflammation may be localised to one side of the face, but more often it progresses, so that the skin of both cheeks, the eyelids, the nose, and the ears may be involved. In more serious cases, the scalp may be included. The swollen eyelids may approximate each other. Small blisters containing serous fluid may appear. Within a week or 10 days, the blisters rupture, or get absorbed and oedema subsides. Other constitutional symptoms also abate, but leave the patient in a weakened state. Lymphatic glands get inflamed and enlarged. In all severe cases, the urine has albumin. The severity of the disease is increased, when larger areas of the body are involved, such as trunk and extremities.

Complications :

The most serious complication is the presence of the bacteria, *streptococci*, in blood. Unless this is prevented or treated with suitable remedies, the mortality rate can be high. *Pneumonia* remains a serious hazard. *Loss of vision* may follow from any corneal involvement. During acute illness, there may be occasional *albuminuria*. The regional gland may suppurate.

Differential Diagnosis :

Erysipelas must be distinguished from the *reddened eczema*, or *herpes zoster*, which do not have the characteristic lesion of erysipelas

and are not associated with an acute febrile state. In erysipelas, the margins are raised, but not so in eczema.

Prognosis :

The duration of illness can be shortened, and the severity of the disease decreased with judicious treatment. Prognosis is especially unfavourable in alcoholism and nephritis. Associated with endocarditis, it is frequently fatal.

Treatment :

General. Patients with erysipelas should be isolated and kept in bed. Nourishment should include liquid diet with ample quantities of fluids.

Curative :

(1) **Aconite.** In very early stages of tingling and burning when the skin is red, shining, hot and swollen, this is indicated, but the Aconite stage may have usually passed, when the patient calls the physician.

(2) **Belladonna** would be most suitable for the commencing stage. The erysipelas of *Belladonna* is of the smooth type. The skin shines and is dark or bright-red. The swelling is rapid and there are sharp, cutting pains or throbbing in the affected parts. Along with this, there is throbbing headache, fever, and sometimes delirium, swollen glands and tenseness. Whether on scalp, or on face or anywhere, the affected parts are very hot. If *Belladonna* fails, *Atropine*, an alkaloid of *Belladonna*, is recommended. *Stramonium* is useful for weakness with brain complications and delirium.

(3) **Rhus Tox.** It is especially suitable for left-sided erysipelas of the scalp, skin of the face or genitals, going to the right, when there is shivering followed by fever, and intense headache, provided these symptoms are caused by getting wet or exposure to cold damp air. This remedy is specially for severer forms of the disease, showing a typhoid tendency with diarrhoea and suppuration and offensive pus. Additional symptoms may be soreness of limbs as well as itching and burning.

(4) **Lachesis.** Erysipelas of the left side, spreading to the right with bright red skin changing to dark-blue or purplish tinge. The patient is sleepy and has a delirium which is sometimes loquacious and the parts affected threaten gangrene. The cellular tissues are specially involved.

(5) **Apis Mel.** The characteristic symptom of the drug is oedema which appears and extends rapidly and the parts feel bruised and sore. The colour ought to be rosy pink at first and later should turn to purple blue. Apis stands between Belladonna and Rhus Tox, though it may not control the inflammation, as Rhus would. Swelling, however, should be more than that of Rhus.

(6) **Cantharis.** Excellent for erysipelas of the head and face, when there is boring and digging pain in the blisters which are large with yellowish colour and violent fever.

(7) **Graphites.** Seems to be suitable for repeated and chronic forms, provided the new attack is brought on by the slightest irritations of the skin.

(8) **Sulphur.** Very useful as an intercurrent remedy in protracted cases of a migrating type.

(9) **Arsenicum.** Useful in sudden attacks, rapid course, with constitutional symptoms of oedema, restlessness, vomiting, diarrhoea, and in migrating erysipelas.

(10) **Ruta and Phosphoric Acid.** For erysipelas in combination with wounds.

PLAGUE

Definition :

Plague, primarily a very contagious, acute epidemic disease, caused by the bacteria, *Pasteurella Pestis* and spreads through infected rats. It is characterised by severe toxæmia, high fever, and high mortality. The transfer of infection from rat to man is through the agency of fleas. It is customary to divide the disease into three types, *bubonic*, *septicaemic* and *pneumonic*.

Etiology :

It is caused by the bacteria *Pasteurella Pestis*. Primarily either small black rats or large grey rats are infected through the agency of wild rats and this produces septicaemia in these animals. Rat fleas, by the name of *XENOPSYLLA CHEOPIS*, are in turn infected by feeding on these diseased rats. The bacteria, then, grow in the stomach of the flea and fill its salivary glands. When the rat dies, the flea leaves the rat and bites a healthy human being and transmits the infection to his blood. Sometimes the infection is transmitted by scratching the skin, where the faeces of the infected flea are deposited. Direct man to man infection is unlikely, except in pneumonic plague cases. The incubation period is 3 to 6 days, but it is less in pneumonic plague.

Pathological Changes :

As the fleas usually bite the leg, the lower lymphatic glands are inflamed or enlarged at first and then other glands of the body get more or less involved. Soon the blood vessels and its membranes are greatly damaged and often cause haemorrhage, oedema and extravasations. Liver and spleen are also congested and enlarged and begin to degenerate. Sputum is full of bacilli and so is the blood, producing septicaemic conditions and varieties.

Symptoms :

One or two days before the onset, the patient is languid, exhausted with much pain in the head and limbs. Dizziness and thirst are common. There is high fever usually up to 103°F with chill, thirst, and marked restlessness. Prostration is very marked. Vomiting is fairly common.

Signs :

The eyes are bloodshot, and sunken ; the look is haggard. The tongue is coated and dry. Sordes collect on teeth. Pulse is feeble, quick and may be intermittent. The mental condition is unduly confused. The speech is blurred and gait reeling. There may be rarely delirium, wakefulness and convulsions. The urine is scanty and high-coloured. Haemorrhages from orifices are common. The subsequent course depends upon the type and variety of the affection.

(i) *Bubonic Type*. This variety is characterised by the formation of buboes. The temperature is moderately high and in favourable cases it falls within 5 or 6 days, but if there is suppuration, it continues till the pus is discharged. The lymphatic gland of the right side, usually inguinal, is generally involved. The other glands may also be affected, particularly those of the armpits and the throat. In unfavourable cases, the infection multiplies and ends fatally.

(ii) *Septicaemic Type*. These cases essentially result from the entrance of a large number of virulent organisms into the blood, where lymphatic glands are somewhat enlarged, but are not big enough to be called buboes. Temperature rises high, with deep toxæmia, consequent delirium, or coma, and even hæmorrhage. Death often follows in 2 or 3 days, or even earlier.

(iii) *Pneumonic Type*. This type is rare in India. It starts suddenly and presents signs and symptoms of broncho-pneumonia with profound toxæmia, prostration, copious hæmoptysis, containing plague bacilli, and dyspnoea. These cases mostly end fatally in 3 or 4 days.

(iv) The fourth type of plague may be *ambulatory*, which develops without much fever or indisposition and with only slight glandular swelling.

Prevention. It consists of (1) rat destruction, rat proofing of houses, of grain stores and shops, the evacuation of infected houses and isolation of plague cases. Personal prophylactics consist of wearing long socks to prevent flea bite.

Complications :

These may be *adenitis*, *mumps*, *abscesses* and *cellulitis*, which appear only in milder types of plague, not terminating fatally.

Diff. Diagnosis :

This is to be distinguished from *climatic bubo* or *syphilitic bubo* and *rat-bite fever*. Culture of the gland juice will reveal plague bacilli in bubonic plague.

Prognosis :

Recovery is rare in severe septicaemic cases and those of pneumonic plague, but with progress in treatment, the outlook is better. Mortality cases in bubonic plague may not be more than 25% with improved hygienic and preventive measures.

Treatment :

Preventive. The patient should be confined to bed and strict isolation be maintained. Good general medical care and nursing are essential. The type of diet has little importance. The fluid intake should be such, as to ensure a profuse volume of urine.

Curative :

(1) **Belladonna.** Indicated in early stages in bubonic and other types, particularly when there is delirium, fever with dry burning heat, intense thirst and sharp, stitching, shooting and throbbing pains in the affected part. Besides, the face and eyes are red and glistening and tongue is coated white-yellowish, or brownish, and there is constant tossing about with mental anxiety.

(2) **Naja** is considered a very efficacious remedy especially in bubonic plague. If the medicine, cannot be absorbed by mouth, it should be injected.

(3) **Operculina Tur.** A remedy for plague, when lymphatic glands are enlarged and swollen and fever is associated with restlessness, loquacity and delirium. Under the influence of this remedy, buboes will suppurate and discharge pus.

(4) **Tarentula Cub.** In toxæmia and septic conditions of the disease ; this is a curative remedy during the period of invasion.

(5) **Arsenicum.** Suited to cases with intestinal symptoms, like diarrhoea, and with extreme prostration.

(6) **Ignatia** has been recommended for plague.

(7) **Lachesis.** Cases, where there is great prostration, restlessness, sore and bruised feeling all over the body and the colour of the white of the eyes is yellow.

(8) **Crotalus Hor** is a very useful remedy in plague, especially when there is a tendency to haemorrhages, and the patient sleeps into his symptoms. It is more right-sided in its action.

(9) **Pyrogenium**. This is a great remedy for septic states with intense restlessness and horribly offensive discharges, whether diarrhoea, vomiting, sweat or breath ; also great pain and violent burning in the affected parts.

CEREBRO-SPINAL FEVER

(Meningococcal Meningitis)

Definition :

Cerebro-spinal fever is the commonest type of pyogenic cerebral disease, characterised by the inflammation of the membrane, lining the brain and the spinal cord. The disease generally starts both in an isolated and epidemic form, manifesting itself as acute meningitis, tending to involve the whole cerebral spinal axis.

Etiology :

Cerebro-spinal fever is a disease of winter and spring, occurring mostly among children between 5 and 10 years of age. Cases above 25 years of age are uncommon.

Direct case to case infection is unusual and there is seldom more than one case in a household. The infection spreads by droplet infection which enters the body through the naso-pharynx and carried by the blood stream to meninges where it enters the C.S.F.

Symptoms :

In adults, it commences suddenly with a chill, followed by fever ranging between 102° and 104°F , violent frontal headache; intolerance of noise and light, sensitiveness to touch. In children vomiting and convulsions are noticed.

Signs :

Quick, irregular pulse, stupor, convulsions, stiffness and rigidity of the nape, or one side of the neck, throwing the head backwards or sideways, the patient lying in agony and pain, dilated pupils, double vision and flabbiness of the enlarged tongue with

dryness and coating, irregular rash on the body which does not appear in all cases. Respiration is irregular. The children usually emit piercing cries ; retention of urine is often noticed. The cerebro-spinal fluid is turbid with clots on standing. Involuntary passage of urine and faeces may be another feature. The patient's thigh is flexed to 90° from the abdomen. It is then impossible to straighten the knee passively owing to spasm of the hamstring muscles. The passive flexion of a thigh causes spontaneous flexion of the opposite thigh and flexion of the neck causes flexion of hips and knees on both sides. Signs of Septicaemia may appear, e.g., a petechial rash before the third day of the illness may appear. Infection of one or more joints and conjunctivitis are common. Papillodema is uncommon, but C.S.F. is under pressure, whose protein content is greatly raised and the glucose content markedly lowered.

Complications :

The skin, the joints, the ears, the eyes, the lungs and the central nervous system may be affected in the acute stage of the disease. These may take the form of :

- (1) *Conjunctivitis*,
- (2) *Otitis*,
- (3) *Pneumonia* and other lung complaints,
- (4) *Orchitis*,
- (5) *Jaundice*,
- (6) *Haemorrhage*, and
- (7) *Paralysis*. Sometimes, *deafness* may appear.

Prognosis :

Under timely homoeopathic treatment, the complications can be averted and the life of the patient saved. The fatality rate is greater in children under 2 years, particularly in septicaemic cases. Unconsciousness, quick pulse, violent delirium, extensive spots and haemorrhages are unfavourable symptoms. Sporadic cases, sometimes remaining undiagnosed, particularly in the early part of its course, prove fatal.

Diagnosis :

The diagnosis is more difficult in infants than adults. It should be based on the examination of C.S.F. and blood culture. If a rash is present, the petechiae should be scratched and examined for infection.

This pyogenic disease should be distinguished from other meningitis caused by *haemophilus influenzae* and *pneumococci* by the fact that the latter have rarely any rash.

Treatment :

Preventive. The patient should be isolated from the other inmates of the house. The public health authorities should be immediately informed of the case. Plenty of liquid nourishing diet is necessary. MILK, one or two pints, and raw or half-boiled eggs are useful. If a patient is in coma, he should be given a nasal feed.

Curative :

(1) **Aconite.** It is useful at the initial stages of the onset, especially when the exciting cause is exposure to sun's rays for a long time, or anger, chief characteristics being fear, fever, restlessness, dry skin, and great thirst.

(2) **Belladonna.** Simple meningitis in the initial and acute stage with intense irritation, headache, heat of body, strong bounding pulse, bright-red face and delirium. The patient starts and cries in sleep and grinds his teeth. This remedy is ineffective after exudation takes place.

(3) **Bryonia.** At the exudation or the effusion stage, Bryonia is the remedy, when there is benumbed sensation, indicated by stupid looks, stiffness of the neck, constant chewing motion with the mouth, when moved screams, abdomen distended, character of pain is of the stitching type. Great thirst or dryness makes the patient drink greedily. The face is flushed and livid, temperature high, and sweat profuse. This remedy suits especially cases with suppressed bodily eruptions.

(4) **Gelsemium.** This remedy acts well, when there is complete or partial loss of muscular power, vision and speech, vomiting, great

prostration and debility, throbbing headache, nausea, feeble pulse, laboured respiration. It is considered less efficacious than *Belladonna*.

(5) **Veratrum Viride.** Dr. Elliott considers this remedy in lower potencies the best in acute cases. The indications are : coldness of the body ; loss of consciousness, dilated pupils, laboured, slow irregular pulse, tendency to convulsions and intense cerebral congestion.

(6) **Helleborus.** Useful for a later stage of the disease, when effusion has taken place and there is automatic movement of one arm and one leg. Anxiety is visible from the wrinkles on the forehead, with dilated pupils and mental torpor and sensorial indifference and lack of reaction. The patient cries suddenly and has a pitiful sound. There are shooting pains in head, which the patient bores into the pillow.

(7) **Cuprum Acetate.** To be employed in cases with violent convulsions. The thumbs are clenched. There is loud screaming, face pale with blue lips—indications which are generally observed at later stages of the disease.

(8) **Crotalus Hor** is useful when spots appear on the skin and the disease takes the shape of scarlet fever. There is pain in all the limbs, horrid headache, red face, delirium with open eyes.

(9) **Opium.** Useful, when the onset takes place after violent mental emotions of fear, grief, fright, which act like a blow and stun the whole nervous system. Spasmodic convulsions take place, drawing the body backwards and rolling it first on one side and then to the other ; deep slow breathing ; very quick or very slow pulse and stupor.

(10) **Other remedies are** Chin. Sulph. ; Lycopodium ; Cicuta. V. ; Zinc Cyanide ; Agaricus. Also note that alcohol (95%) cuts the disease short in its progress and sometimes revives the patient when he is collapsing. The dose is one tablespoonful every 1/2 an hour, from a solution of 2 tablespoonful in 1/4 oz. of water.

The Enteric fevers

TYPHOID FEVER

Definition :

Typhoid fever is an infectious fever (Septicaemia), characterised by sustained, continued fever, eruptions in crops of rose-spots, enlargement of spleen, abdominal tension, and bowel disturbance. Ulceration of small intestine and enlargement of mesenteric lymph glands and spleen are distinctive lesions.

Etiology :

Salmonella Typhosa is the causative organism of the typhoid fever. It finds an entry into a human being through food or drink. An undetected person, who is healthy, is often the cause of an outbreak in epidemic form, as his faeces, or occasionally, urine contaminate the main water supply. A more direct source is the excreta of a person suffering from the disease in the shape of either faeces, vomit or urine, which contaminate food or drink through unclean fingers or utensils, soiled linen, or contact of flies. The bacilli enter the intestinal tract, pass to the peritoneum, liver, spleen and bone-marrow. After this they multiply and enter the circulation of blood, and, then, go back to the intestine, where the developed bacteria form a lesion near the ileo-caecal region, resulting in hyperaemia and some type of ulcers and even haemorrhage. The perforation of bowels is also possible, but is very rare.

Clinical Features :

The incubation period varies from 12 to 16 days.

Clinical Description :

The onset is insidious and often the patient may walk about for three or four days before being forced to take to bed.

Typhoid fever of average severity shows three fairly well-marked stages :

First Stage :

The most important early symptom is severe frontal headache. This period is characterised by gradually advancing

malaise and a desire to sleep. There is headache, severe giddiness, pain in the limbs, anorexia and thirst, nausea, and vomiting may occur, but are generally uncommon. The tongue is dry and furred; the bowels are usually constipated and epistaxis is not uncommon.

The first period lasts for 5 to 7 days. The temperature rises by about a degree every evening until it reaches 103°—104°F. The temperature chart is often of a *stepladder pattern* during the first week.

Second Stage :

By the end of the second week, the general symptoms having advanced, present a characteristic appearance. The patient is weak, inert, in stupor, may be in delirium, has lost flesh, the tongue is dry and brown, the abdomen is distended, the pulse is soft and slow in proportion to temperature. The rash may appear on the upper abdomen and on the back. After 2 or 3 days they disappear and fresh ones may crop up. The spleen becomes palpable and soft. About this time, constipation is succeeded by loose stools of a pale-yellow colour containing mucous. The urine is diminished in quantity.

Third Stage :

In severe cases, the patient enters the third stage after two weeks of sustained pyrexia. This is the period of decline of the disease characterised by general, physical and mental improvement, the temperature falls, the stools become less frequent and semi-formed. The tongue cleans and appetite returns. The spleen is no longer palpable.

If the patient overeats, gets constipated or overexerted, fever may return and in such cases patient has to be treated as a relapse case.

A second attack may return after an interval of years after the first attack.

Diagnosis :

This is done :

(1) by *clinical features*.

(2) by *blood culture*, which usually becomes positive from the first week of fever. So it is the earliest method by which you can diagnose an enteric fever.

(3) by *agglutination test*, popularly known as *Widal test*. It usually becomes positive after the 10th day.

(4) by *stool culture*. Stool culture shows bacilli occasionally during incubation stage and in 50% of cases in the fourth week.

(5) by *urine culture*. This also becomes positive in the latest stage of the disease.

Complications :

(1) The most frequent serious complication is *haemorrhage* from the small intestine during the third or fourth week. Profuse bleeding becomes fatal in most cases.

(2) The second complication is *perforation of intestine* which can be inferred from the increasing hardness of the abdomen. A sudden fall in temperature suggests haemorrhage or perforation with peritonitis.

(3) The third complication is *pneumonia* which may occur as an extension of bronchitis which usually accompanies typhoid fever.

(4) The fourth is a *possible relapse of this fever* during convalescence. This occurs in about 10% of cases through over-exertion and careless nursing. The course, however, is generally short and the illness is milder than the original attack.

Differential Diagnosis :

It may be confused :

(i) with *paratyphoid fever* which is usually milder than the typhoid.

(ii) with *pneumonia* on account of the presence of cough. But a close physical examination of the lungs can point to the correct diagnosis.

(iii) with *acute miliary tuberculosis* which has a high fever without the peculiar rise of typhoid fever, no enlarged spleen and no eruption.

(iv) with *septicaemia* which has repeated chills followed by sweats early in the course and no eruption,

(v) with *influenza*, which has much body pain and upper respiratory catarrh.

Prognosis :

Under the influence of homoeopathic remedies, there is rarely any danger to the life of the patient, especially because serious complications can be prevented in 99% of cases. Cases, in which perforation of intestine and haemorrhage take place, are the most unfavourable ones for total recovery. Typhoid in pregnancy is most unfavourable.

Treatment, General and Prophylactic :

(1) **Typhoidinum** 30, if taken by mouth during an epidemic regularly for some days, gives immunity from this infection for the time being.

(2) Absolute rest in bed, using bed-pan, daily sponging and mouth gargling with salt water is necessary.

(3) Skimmed milk, whey, and fruit juices (if there is no diarrhoea) during the onset may be given.

(4) At normal temperature, rice, soft pulp of bread, sago, fish, raw or half boiled eggs, boiled potatoes may be allowed.

Curative :

(1) **Typhoidinum**. This homoeopathic preparation has been successfully employed by Dr. Watters of America in higher potencies only, the lower ones aggravate the symptoms. This is not only curative, but preventive too. No indications, however, have been mentioned except that it suits typhoid infections.

(2) **Baptisia, Arnica, Rhus Tox**. These three typhoid remedies have some common symptoms, and so must be distinguished from one another before being selected. *Arnica* and *Baptisia* have common symptoms of :

- (1) drowsy stupid state,
- (2) feeling of hardness of bed,

- (3) bruised and sore sensation all over the body, and
- (4) restlessness. *Rhus* and *Baptisia* have in common a black or brownish coated tongue and symptoms numbered (3) and (4) above with this difference that the restlessness of *Baptisia* is mental, while that of *Arnica* and *Rhus* is physical. If this is clearly understood *Baptisia* can be prescribed with the following additional characteristic symptoms :

- (i) Characteristic mental condition in which the patient tosses about the bed to collect the scattered pieces.
- (ii) All discharges, faeces, sputa, urine, sweat or breath are offensive. Besides, there is prostration, tenderness in splenic region and the pulse rate is high. Again *Rhus Tox* has the additional symptom of triangular red-tip to the tongue and the offensiveness of discharges is less. Stools have a yellowish-brown colour and may be involuntary. Backache is severe and mentally the patient is active and not drowsy. These two remedies, if given early, may abate the disease. *Arnica* on the other hand is never indicated as early as the other two. The patient tosses about the bed to find a soft spot and goes to sleep while answering questions. The head is hot and the body is cool. The stools and urine are involuntary. There may be bed-sores and blue spots. *Bryonia*, a great typhoid remedy, especially when vitality is not lowered by constipation or soft musty stools. At this stage *Bryonia* will remove the gastric irritation, moisten the tongue and bring the whole condition to a favourable turn. It must be given as soon as heaviness of limbs preceding soreness over the whole body, headache, white-coated tongue, loss of appetite are observed. Other symptoms are : dread of motion, great thirst, face red towards evening, congestion of head in the morning, followed by nose-bleed, troublesome sleep, full of dreams of business, coupled with a possible delirium. With the latter

symptom, *Bryonia* should not be confounded with *Belladonna* in which there is greater mental irritation.

(3) **Arsenicum.** The main feature of this remedy is that all symptoms are worse after midnight. Restlessness is due to prostration and not to any soreness of the body. An extremely red tongue is a guiding symptom. If you combine with this, diarrhoea, you have a complete picture of *Arsenicum*, viz. complete prostration, red tongue, thirst, restlessness and diarrhoea. When the abdomen has a tympanic condition with prostration, *China* is indicated. Remember that the *Arsenic* patient is faint and weak, exhausted, perhaps, with cold sweat and delirium, and the mouth is sore with dry crusts on the lips. *Arsenic* is generally indicated in typhoid, when the case is bad.

(4) **Muriatic Acid.** This remedy is similar to *Rhus Tox*, but should follow rather than precede it. The chief guiding symptoms are ulceration of the mucous membrane, foetid breath, and great weakness. It should be given in later stages, when putrid smell is prominent and the patient is so weak that he slips down to the foot of the bed. The tongue is so dry that it rattles in the mouth. Diarrhoea is watery and escapes with the urine. Pulse is intermitting. The mouth is sore and tender.

(5) **Lachesis.** If hypersensitiveness is present, the choice of this remedy is possibly certain, provided the following symptoms are indicated in later stages ; signs of paralysis of the brain, viz. the dropping of the lower jaw, offensive discharges, low muttering delirium, condition of stupor. There is offensive diarrhoea, dry trembling tongue, haemorrhage of dark blood from the bowels or any other orifice of the body.

(6) **Opium** has paralytic condition similar to *Lachesis* with this distinction that it has in addition dark-red face and stertorous breathing.

(7) **Hyoscyamus.** It is characterised by muscular twitchings and is required sometime or other in typhoid fever. In the early stages, it may be required for delirium and later with symptoms of cerebral paralysis. The delirium ought to be low, muttering or furious, with

muscular twitchings, with dropping of the lower jaw and involuntary stools. In *Hyoseyamus* there is a greater evidence of blood poisoning than in *Belladonna*.

(8) **Nux Mosch** is indicated in nervous and stupid varieties of typhoid fever, where the tongue is excessively dry and the condition is stupid, silent and immovable like that of *Opium*.

(9) **Gelsemium** is indicated in the first stage in a comparatively mild case. In this remedy the nervous symptoms are also predominant, patient being dull, indifferent, emotionless, quiet and never worrying over his condition. Dropping eyelids, general languor and a feeling of illness, trembling, chilliness, full and flowing pulse, sore bruised feeling all over the body ; headache, drowsiness, red face and dread of motion are the guiding symptoms. It should precede *Baptisia* on account of its mild character, the distinctive signs being, soreness for *Baptisia*, and prostration for *Gelsemium*.

(10) (i) For haemorrhages in typhoid fever use *Nitric acid* ; *Millefolium* ; *Hamamelis* ; *Terebinthina*; and *China* according to indications.

(ii) *Croton Tig.* is one of the best remedies for complications of diarrhoea with colic.

(11) **Kali Phos.** Use this remedy when the following symptoms are present ; a dry brown tongue, dry crusts on teeth, great mental depression ; delirium ; blood extremely contaminated with typhoid poison and all discharges are foul and offensive.

(12) **Calc. Carb. 200** is useful when the rash does not develop and the abdomen swells up and is hard. The patient cannot sleep, is frightened by imaginary objects and is in stupor. (Give *Lycopodium*, if this fails).

Vaccinum Myrtillus Q :

For frequent yellow loose stools, great thirst and chilliness. This drug, if given early during the disease, *i.e.*, in 1st week, will arrest the temperature on the first day. On the second day, there will be a fall of temperature, on the third day, there will be a gradual remission of temperature and full remission within 5 days. (Dose : 5 to 10 drops in water, 4 times daily).

(b) PARATYPHOID FEVER

Definition :

The enteric fever, which is caused by *Bacillus Salmonella* Paratyphosa and the other members of the group, closely resembles typhoid fever, but tending to be shorter in duration and milder with fewer complications, is termed 'Paratyphoid' fever. In paratyphoid, the ulceration of bowels is more superficial, haemorrhage being slight and perforation rare. It may even take the form of septicaemia without bowel disturbances. Group A is common in India, and group B in Britain.

Etiology :

The disease is caused most commonly by Paratyphoid B organism indirectly conveyed by flies that contaminate food, milk or water after contacting the infected excreta. The incubation period is 7 to 14 days.

One attack confers lasting immunity.

Symptoms and Signs :

The rise of temperature is often more sudden than in typhoid fever. It is sometimes attended with chill and vomiting; the fluctuations start early. Some of the cases start with the passage of blood and mucous in stool. The spleen and liver are slightly enlarged and jaundice is sometimes present. The pulse is slow, but has not got a double beat. The tongue is thickly coated. Tense headache, loss of appetite and flatulence are usually present. Delirium, stupor, and cerebral irritation may occasionally occur. The course in paratyphoid is less prolonged. The onset is abrupt more often e.g. with acute enteritis. The rash is more abundant. Complications are less frequent.

Prognosis :

Rarely an attack of paratyphoid fever is as serious as that of typhoid fever and recovery is almost certain.

Treatment :

General : (1) The patient may be segregated and the excreta quickly disposed of.

(2) The tendency, now a days, is to administer a diet yielding 2000 calories, consisting of milk, cream, butter, toast, sugar, soft-boiled potatoes, eggs and rice, divided into breakfast, lunch, tea and dinner. Such a diet is expected to improve the channels of immunity and give a general sense of well-being without disturbing the intestines. This diet, however, should not be pursued, if the bowels are disturbed. In that case, the diet may be skimmed milk, or peptonised milk and egg-albumin in some cases. After the temperature touches the normal, semi-solids like rice, soft pulp of bread, sago or sooji and after sometime soft boiled egg, fish, chicken, and boiled potatoes are allowed.

The homoeopathic treatment will be in accordance with symptoms. For a selection of remedies, see the section on 'TYPHOID' fever.

COLIFORM BACILLUS INFECTION

Definition :

This type of infection is characterised by fever of varying severity sometimes with bacteraemia, but more commonly with certain localised symptoms in the urinary tract, alimentary canal, or the gall-bladder.

Etiology :

The coliform group, which causes various forms of infection more among women than among males, include among others the organisms, *Esch coli* (75%) and *salmonella typhi*. Here we will consider infections, for which *Bact. Coli* is alone responsible. In health, coliform bacilli are confined to the intestine. The modes of infection of the parts of the body other than the bowels are sometimes apparent and sometimes obscure. There are three possible routes of infection.

(1) The direct route *i.e.* from the bowels to the infected area.

(2) by the ureteral lymphatics, and

(3) by the blood stream. The direct route is followed in the gall-bladder, and pelvic infections, as also in the urinary tract infections through the urethra. In the majority of these cases, the

infection appears to arise in the pelvis of the kidney and some of these are vesical in origin. Under certain circumstances, these infections are pathogenic to the intestine itself, but more commonly they are so, when they migrate to other place. Urinary obstructions, prostatic enlargement, pregnancy, stones, tumours, foreign bodies, pelvis inflammation may be predisposing causes.

Symptoms :

Severe shaking chills followed by high fever, headache, nausea and sometimes vomiting, constipation, no appetite, fatigue, backache, and scanty painful urination are common.

Signs :

Anaemia ; in acute cases, the temperature rises to 104° or 105°F . There may be several paroxysms daily, and the temperature runs an irregularly remittent or continuous course ; the bladder is tender on deep pressure. The urine is turbid, and loaded with pus cells. The tongue is usually coated, and so the condition is likely to be confused with paratyphoid fever and other high fevers. In chronic cases, there may be no symptoms, referable to kidneys. Lassitude, fatigue, and ill-health are felt. Polyuria, and lumbar pain may be present. Urine may show protein, numerous pus cells, and many epithelial cells.

Complications :

In males they are *urethritis*, *prostatitis* and *epididymitis* and in the females, *inflammation of the fallopian tubes*. Sometimes it results in *gastro-enteritis* or *chronic colitis*, *appendicitis* etc.

Prognosis :

It depends on the form of infection. B. Coli infection is better than a mixed infection. In advanced age, there is a greater risk of life. In children, the symptoms may be unfavourable. The diabetic patients are likely to suffer the greater damage.

Treatment :

General : (1) In acute cases, the patient should be kept in bed.

(2) Liquid diet, barley water and plenty of fluids should be used.

Curative :

B. (E) Coli 30. Provided it is diagnosed that the infection is *B. (E) Coli* and the clinical picture is complete.

Methylene Blue 6. Chiefly used when there is a large amount of pus in urine. It diminishes fever, tympanitis and delirium.

Echinacea. It is indicated, when the infection affects the stream of blood.

RHEUMATIC FEVER**Definition :**

Rheumatic fever is (often called acute rheumatism) an acute febrile disease, which occurs long after a latent period varying from several days to 6 weeks, following an infection with haemolytic streptococci (Group A) bacteria. It is characterised by the inflammation of the connective tissues especially of the joints, the heart, the blood-vessels and the hypodermis. The name, rheumatic fever, thus, fails to convey anything with regard to the manifestations of the heart lesions, which are of primary importance in this disease.

Etiology :

Although exact causative agent of this disease is uncertain, numerous clinical studies have pointed out that there is a relationship between streptococcal sore-throat and rheumatic fever. The former complaint has often preceded the latter. If rheumatic fever can be cured by anti-streptococcal treatment, an indirect confirmation of the source of infection is pretty well-established. At the same time, mechanism by which the bacteria initiate the disease, remains obscure. As the symptoms of rheumatic fever manifest themselves after an interval of several weeks, following the infection, the streptococci may no longer be recoverable from the culture of nose and throat focus. Hence, no satisfactory conclusions have been drawn regarding the mechanisms of the process. Besides, it is also a fact that only a small percentage of persons, who suffer from sore-throat, subsequently develop rheumatic fever. It may be noted that rheu-

matic fever appears to be more common among families in the lower income group. The effect of poverty being dependent on malnutrition, overcrowding and housing facilities lead to greater streptococcal infections among the poor. The disease usually occurs between 5 and 15 years of age, and often runs in families.

It has been suggested that the disease may be a manifestation of streptococcal allergy, as repeated infections may produce sensitisation which may eventually manifest itself as a complex symptom in the form of acute rheumatism. But it has yet to be finally settled.

Symptomatology :

(1) There may be a sudden onset of pain, stiffness and sweating in one or more joints with fever and tachycardia, or the onset may be insidious with fatigue, malaise and loss of weight.

(2) Fever with acute attacks are usual but it is variable in degree and duration.

(3) Anorexia, furred tongue, constipation and albuminuria are often present.

(4) Tachycardia may be out of proportion to the degree of fever due to anxiety or excitement.

(5) Fleeting joint pains is a characteristic feature.

(6) Polyarthrititis is more marked in adults than in children in big joints.

(7) Rheumatic fever.

(8) Leucocytosis is common in the active stage.

(9) Chorea in children show a tendency to develop. Rheumatic valvular lesions develop.

Diagnosis (Differential)

It is erroneous to think that rheumatic fever is unlikely, if one joint is excluded. Differential diagnosis is different but can be understood by the following observations :

(a) *Rheumatoid arthritis* : In this, the onset is rarely acute, while smaller joints are principally affected and often assume a characteristic abnormality and morning stiffness in the affected parts with possibly no migrating pains.

- (b) *Osteomyelitis* has pain and tenderness in the neighbouring bone rather than the joint. Diagnosis is to be confirmed by radiological examination.
- (c) *Gonococcal arthritis*. In this, the trouble is usually mono-articular. There is either a history of discharge or positive smears will be obtained from the urethra or cervix.
- (d) *Congenital heart disease or acute septic arthritis*. A study of cardiac abnormalities will reveal the nature of past disease.

Complications :

Most commonly there are cardiac complications. In some cases there may be *broncho-pneumonia*, *pleurisy*, *chorea* and eruptions on the body, particularly among children.

Prognosis :

Except for occasional serious complications of pulmonary or cerebral or cardiac type, death seldom occurs. With the improvement and early treatment, fatality rate has considerably decreased. Chorea is an unfavourable complication.

Treatment :

General : (1) The patient should be strictly kept in bed till the active disease disappears.

(2) To assist this, planned recreation and occupation of the patient is essential in view of the distressing symptoms of anxiety and fear which are the natural consequences of the disease.

(3) Diet during the active stage should be liquid only, containing glucose, milk, fruit juices. Semi-solids may be allowed when convalescence is nearing.

Curative :

(1) **Aconite**. Dr. Jousset recommends Aconite tincture in acute rheumatic fever with basic symptoms of restlessness, thirst, dry, hot skin, scanty urine, stitching pain in chest, hindering free respiration or great agitation of heart with anxiety and particular rheumatism, with hot, pale, or red swelling of the joints, shifting some times from one to another.

(2) **Belladonna**. When the fever is high with cerebral irritation & the pain of joints comes and goes suddenly.

(3) **Bryonia**. When membranes of the heart are involved in rheumatic affections of the joints, Bryonia is one of the prominent remedies at the first stage of pericarditis of rheumatic origin. Other symptoms are intense fever, frontal or occipital headache, accute stitching pains, aggravated by the slightest motion, even of breath. The heart beats violently and rapidly. The sweat is sour.

(4) **Cimicifuga**. This is a rheumatic remedy often indicated in heart troubles, especially when they occur after *chorea*, or rheumatism of the fleshy part of the muscles, but not the extremities. Insomnia is persistent, and pain, down the left arm, may come suddenly in shocks. The headache is confined to the forehead, or appears, as if the top of the head would fly off.

(5) **Cactus G.** Rheumatic endo-carditis & pericarditis may call for this remedy, provided it has a sensation, as if the heart were grasped with an iron hand, which grasps and relaxes alternately. Other symptoms that will help in the selection are : pains shooting into left arm, oedema and a quick throbbing, tense, hard pulse which may or may not intermit.

(6) **Mercurius Viv.** Rheumatic pains, swelling of joints, worse at night; sweating gives no relief, when there are cardiac complications.

(7) **Calcarea Carb.** Rheumatic affections, caused by working in water, heat and sweat of head; cold clammy feet and hands; violent perspirations at 3 a. m. : pains greater by every movement.

(8) **Rhus Tox.** Rheumatic hypertrophy of the heart calls for Rhus, provided all symptoms are relieved by continued motion. Damp weaher, cold and approach of storm aggravate. Tearing pains with paralysed sensation and even stitches are experienced in deeper fibrous tissues. This remedy follows *Bryonia* well.

(9) **Propylamin.** Is especially recommended in acute rheumatism, where the heart is involved. It dissipates fever in a day or two,

if given in tincture form for 10 to 15 drops per dose in plenty of water every 2 hours.

(10) **Pinus Sylvestris**. For rheumatic, bronchial and urticarious symptoms.

Besides compare the following also :

Dulcamara; Colchicum; Sulphur; Arnica; Pulsatilla.

IV

Spirochaetal and Spirilla Infections

Endemic (Non-Venereal) Syphilis

Etiology etc :

Sporadic syphilis is usually transmitted by sexual intercourse. In certain tropical countries, where lack of hygiene prevails, *treponematosi*s occurs as a family disease, the lesions of which show a close resemblance to those of venereal syphilis. This condition has been given the local names of *befel* in Arabia, *njovera* in Rhodesia, *dichu-chwa* in Botswana, *Siti* in Gambia, *skerljevo* in Bosnia or *Sibbens*, when formerly it was endemic in Scotland. The causative organisms are regarded as modified strains or *Treponema pallidum*, with which they are morphologically (in form and structure) identical.

The common mode of infection is through an abrasion, the disease being transmitted from one child to another, and occasionally from a child to a parent. Sometimes it spreads in a closed community by the use of common drinking vessels and possibly, on occasions, mechanically by flies. The poor social conditions in which the disease prevails are similar to those where *yaws* is found, but the clinical lesions resemble those of juvenile syphilis.

Clinical Features :

In contrast to sporadic syphilis, the primary lesion is rarely seen except when a child has inoculated the nipple of the mother during suckling. The lesion presents as an ulcerative papule without regional adenites. The secondary and tertiary lesions include all the common types of skin and bone manifestations of syphilis, but typical papillomatous lesions resembling *yaws* are infrequent.

In addition, "mucous patches" due to superficial ulceration in the mouth, are common, and are often the first sign of endemic syphilis, but they are very rare in yaws. Visceral and neurological lesions are absent or rare. The usual serological tests give identical results in sporadic syphilis, endemic syphilis and yaws.

YAWS

(Framboesia or Pian)

Definition :

Yaws is a contagious disease caused by *Treponema pertenue* and characterised by lesions in the skin and bones. The lesions are basically granulomatous and non-destructive in the early stages, but later cause serious damage.

Distribution :

The geographical distribution is irregular in the tropics. Yaws is endemic in South America, the West Indies, North and Equatorial Africa, parts of India, Ceylon, Burma, Indonesia, Thailand, Malaysia and the Philippines. It also occurs in central America and Northern Australia.

Etiology :

Treponema pertenue, which causes yaws, is a motile, tightly coiled spirilla, indistinguishable morphologically from *Treponema pallidum*, which causes syphilis. The organism is transmitted by direct contact with an infectious human case. It is not known whether the organism can penetrate the unbroken skin. But it commonly gains access through abrasions. Flies and cockroaches may occasionally spread the infection. Infection most likely takes place in early childhood in huts at night, when the temperature and humidity are high, and families use communal sleeping mats. Coloured races are much more commonly infected than whites.

Clinical features :

(1) The incubation period is three to six weeks. The primary lesion or "mother yaw" is usually on the leg or buttocks and may arise at the inoculation site or contact as a papule (it later ulcerates),

when a child is carried by an infectious adult. The papule dries and forms crusts, so that the yaws projects from the skin as a fungoid mass, which has been likened to a raspberry. Hence the alternate name given to it is "framboesia"

(2) The secondary infection usually follows a few weeks or months later, sometimes before the primary lesion has healed and dried.

(3) The most typical are the so-called papillomata consisting of numerous exuberant tissue covered with a whitish yellow exudate and more prolific in the moist flexures and around the mouth. There may be successive crops of lesions.

(4) In spite of an eruption of a formidable type, the child is not in a toxic state. On the other hand he may be active and unconcerned except for the irritation caused in the sores, which attract flies.

(5) These lesions are highly contagious.

(6) Sometimes the lesion erupts through the sole or palms and becomes painful and prevents walking.

(7) The bones of all the fingers may rarify.

LEPTOSPIROSIS

(Spirochaetal jaundice)

Definition :

This is a spirochaetal disease, which is also called Japanese seven-day fever or *Well's disease*.

Etiology :

This disease is caused by species of the *Spirochaete leptospira*, an organism commonly found in rats and other rodents living in stagnant water. The infection of man is accidental, but it may be occupational, associated with the contamination of food stuffs or the skin or mucous membrane by urine from infected wild vertebrate animals. The incubation period is from 7 to 13 days.

Clinical features :

(1) In milder forms, it may be an influenza-like illness developing abruptly or may resemble lymphocytic meningitis.

(2) In severer forms, the picture is that of fever, jaundice, toxæmia, haemorrhages into the skin and the mucous membranes and damage to the kidney with characteristic changes in the urine including increasing albuminuria.

The onset is sudden with a rapid rise of temperature, rigors, headache, muscular pains and gastro-intestinal disturbances with nausea and vomiting. The remittent fever lasts about 10 days. Jaundice appears on the 4th or 5th day and deepens rapidly ; The stools become clay-coloured. Some cases of Well's disease are mild and are not followed by jaundice.

Herpes labialis is common with haemorrhagic vesicles, and there may be a petechial macular rash. There is commonly conjunctival congestion. Epistaxis, blood-stained sputum and haematuria may occur. The urine contains bile pigment and increasing amounts of protein, in cases in which kidney failure appears, oliguria develops and may be followed by anuria. Direct infection of the meninges occurs in about 10% of cases and produces symptoms and signs of meningitis. During recovery the temperature falls by lysis. Relapses may occur. In milder cases jaundice may never be present.

Prognosis :

Fatal cases occur with rapidly deepening jaundice, very severe toxæmia, prostration, delirium and cardiac failure. Death commonly occurs in the second week.

Diagnosis :

The organisms may be recovered in blood in the first 10-14 days. The clinical diagnosis is made in patients with fever, severe conjunctival congestion and pronounced tenderness of the calf muscles.

Treatment :

Merc. Sol. is the chief remedy.

RAT BITE FEVERS

Definition :

Rat bite fever is a clinical syndrome, characterised by a relapsing febrile illness of long duration often with recurring inflammation at the area of the bite-wound and involvement of lymph nodes, a short term eruption and muscle and joint pains during the attack.

Etiology :

The disease is caused by infection with two distinct organisms, *spirillum minus*, and *Actinobacillus muris*. The first one is transmitted from contaminated food, and the other one by milk, which the rats or mice have eaten or drunk. The infection may be septicaemic.

Symptoms and Signs :

(1) The incubation period in *S. minus* fever is 5 to 30 days and in the other about 2 to 10 days.

(2) The onset is marked by a rapid rise of temperature and a remittent fever which may last 2 to 4 days or as long as a week, followed by a short remission for 3 to 7 days and further febrile episodes.

(3) Relapses occur frequently.

(4) An eruption appears as a blue—red or purple mottled erythema on the upper part of the trunk, tending to spread over the trunk and the limbs.

(5) The spleen is commonly enlarged in *A. Muris* infection.

(6) Epidemics due to contaminated food is recorded. The clinical picture, is different. There is abrupt fever with risk, followed by acute polyneuritis within the first 5 days, Bacterial endo-carditis has been reported.

Diagnosis :

Spirillum minus organisms are not found in the blood films even at the height of fever, but they can be found in preparations of oedema films from inflamed areas at the site of bite. *Actinobacillus*, however, can be cultured from blood taken during fever.

Treatment :

See "jaundice", *Merc-Sol.* and *Lachesis* are principal remedies for fever.

THE RELAPSING FEVERS**Definition :**

The relapsing fevers are caused by spirochaetes belonging to the group of motile *Treponemata* of the genus *Borrelia*. They are characterised by the occurrence of attacks of high remittent fever which appear and subside sharply with intervals of quiescence (quietness). There are two clinical forms :

- (1) Those transmitted by louse, and
- (2) Those by ticks.

Louse—Borne Relapsing Fever**Etiology :**

Louse-borne relapsing fever is a serious disease which results from infection with *Borrelia recurrentis* transmitted to man by the human body louse *Pediculus humanus*. The disease is characterised by periods of fever during epidemics associated with the enlargement of liver, and spleen, jaundice and toxæmia. There are seldom more than two febrile relapses. It occurs in colder and temperate climates of the world, where lice are common. Infection is transmitted not by the bite of the louse, but by rubbing into abrasions of remnants of damaged lice, broken-up by scratching. An attack gives immunity to reinfection for about a year. In endemic areas, attacks are, therefore, possible every two or three years.

Symptoms and Signs :

(1) The infection period varies from 2 to 12 days. There may be early signs for a day or two followed by a sudden onset with rigor, prostration, headache, widespread bodily pains, nausea and vomiting.

(2) The temperature rises to 104°F or higher and continues as a remittent fever.

(3) The skin is flushed and conjunctiva often injected.

(4) Epistaxis is common.

- (5) The liver and spleen are enlarged and tender.
- (6) Jaundice is frequent and signs of bronchitis may be present.
- (7) There may be erythematous or macular rash which in severe cases is haemorrhagic.

These symptoms and signs develop and continue for about a week and then begin to subside. An afebrile period for a few days to three weeks follows, to be succeeded by a febrile relapse which is similar to, but shorter and less severe than the primary attack. If it becomes severe, jaundice may appear for the first time. After a few days the fever and other symptoms abate again only to reappear as a second relapse. In some cases the third and fourth relapses may occur, but in most cases there are not more than two relapses.

Diagnosis :

The diagnosis is made by examining the blood during the febrile periods. The spirochaetes are present in wet preparations of plasma or blood under these conditions, but absent in the afebrile intermissions.

Prognosis :

The mortality is high.

Tick—Borne Relapsing Fever

Definition :

This is a non-epidemic or endemic relapsing fever caused by *Borrelia duttoni*. This is primarily an infection of animals, from which it spreads to ticks and is transmitted from tick to tick transovarially. The general picture resembles that of louseborne relapsing fever, but the attacks are shorter but severer and relapses are more frequent.

Etiology :

Where rodents are the reservoir, the disease occurs only sporadically in man and depends on man being attacked by ticks infected from animals. Ticks feed occasionally on man, usually, when he is lying on the ground or working or camping in the bush.

When a tick bites man, it pierces his skin, and excretes saliva, evacuates faeces and discharges coxal fluid. Spirochaetes are present in all these fluids, and may enter the wound made in feeding, or cuts and abrasions, or through unbroken mucous membranes.

Symptoms and Signs :

The onset and the course is much the same as under louse-borne relapsing fever. The intervals between the febrile paroxysms are shorter, being usually less than a fortnight, and fever tends to be lower. The number of relapses are greater and may be six or more.

The complications are more severe and more frequent and include *iritis* and *neurological changes*, such as 7th nerve paralysis and spastic paraplegia. The febrile period is often associated with diarrhoea or dysentery. The tendency to haemorrhage is greater. Nevertheless, mortality is lower. Diagnosis is made as under "Louse-borne fever".

Treatment :

The following remedies are suggested :—

- (1) Aconite,
- (2) Arsenic,
- (3) Baptisia,
- (4) Bryonia,
- (5) Cimicifuga,
- (6) Eucalyptus,
- (7) Eup. Perf.,
- (8) Rhus Tox.

V

Virus Infections

Viruses are the smallest of known agents capable of inducing infectious disease. The protozoa group are the biggest, and then follow bacteria and other agents. The nature of viruses is not yet known. Multiplication and growth of these viruses occurs under suitable conditions in the presence of living cells. They are more

resistive than bacteria to sunlight and to disinfectants. All the viruses are highly infectious, and are believed to be the primary cause of as many as fifty different infectious diseases of man. Some of these are described below.

INFLUENZA (Flu)

Definition :

Influenza is a specific infectious disease, characterised by sudden fever of short duration, headache, prostration, sever pain in body, and inflammatory complications of the respiratory passages. It is caused by the influenza group of myxo-viruses (A, B & C) and occurs most commonly in epidemics of varied size and intensity with occasional isolated cases as well.

Etiology :

The disease is mostly caused by the types known as influenza A and B viruses, but the third type, known as influenza C virus causes only sporadic mild illness. During the acute form of the disease, the virus is found in the respiratory tract, but not in other areas of the body, nor in the blood, sputum, saliva, and nasal secretions containing the agent. The disease is transmitted by air-borne infected droplets in the first two days of illness from symptomless infections. Infection with influenza A virus does not lead to immunity against influenza B or C virus and vice versa. No age, sex, or race is exempt. Incubation period is 2-3 days.

Symptoms :

The onset is always sudden and the incubation period very short. It is difficult to describe all the clinical features owing to the wide variations which occur in the diseases in various localities and at different times. The cases can however, be divided into :

(1) simple influenza, and

(2) those which have pulmonary involvement. In typical influenza cases, the symptoms commonly are : chill, fever, lassitude, severe headache, loss of appetite, and muscular pains. Prostration is also common in the respiratory tract, there may be sneezing, nasal

discharge, fulness of trachea, larynx and naso-pharynx, harsh cough, nose-bleeding, hoarseness and nausea. The pains in limbs form a characteristic feature of influenza.

Signs :

Fever is commonly remittent and usually persists for a variable time from 4 to 6 days. The highest temperature is between 101° and 103°F , though in severe cases it may reach 105°F , the highest being on the first or second day of the disease. Pulse rate increases in proportion to fever and may be rapid. Respiration is normal or slightly increased. The face may be flushed ; the nasal passage may be swollen and congested. Fine moist rales may be present in the lower lung at the chest. There is often leucopenia.

The pneumonic or septicaemic type of influenza often starts with symptoms similar to those of the simple form of the disease. But it may, if untreated, develop to a grave type of illness, where breathing is rapid and shallow, cough is frequent and troublesome, the sputum is excessive, frothy and blood-streaked. The colour changes from pink in milder cases to violet in serious ones. The temperature however, is not high and the blood may indicate septicemia. Kidneys are affected with albumins and casts. Occasionally delirium and convulsions occur. Sometimes there is bronchial breathing and pulse is slow. When recovery takes place, the temperature falls by lysis and convalescence is prolonged.

Complications :

These are respiratory and occasionally cardiac with pneumonia and palpitation with soft and quick pulse and dyspnoea.

Diagnosis :

The symptoms of influenza are similar to bronchitis, except that influenza has higher fever, severe pains throughout the body with gastro-intestinal irritation and intense discomfort. The presence of the virus in cultures of throat swabs and garglings should confirm the diagnosis.

Prognosis :

Recovery is anticipated in majority of cases. In the under-nourished or persons of weak constitution and advanced age, the

prognosis may not be as good ; the patients are liable to develop bacterial infections like broncho-pneumonia which is generally unfavourable. Cyanosis is a very grave sign. Profuse sweating is a favourable sign.

Treatment :

General. (1) Over-crowding should be avoided.

(2) Cold in the initial stages should be treated immediately.

(3) *Influenzium 30* or *Arsenicum 200* should be given during the epidemic to healthy individuals.

(4) Plenty of fluids and glucose should be given by mouth.

(5) Tasty, soft, easily digestible diet and fluids, about 3000 c.c. daily should be allowed.

Curative :

(1) **Aconite.** This is not a leading remedy for influenza, unless indicated in the primary stage of the disease. It may be efficacious for children, as it will soothe and palliate the subsequent attack, though action is not as quick as in ordinary fevers.

(2) **Gelsemium.** It has proved its usefulness in the early stage of influenza epidemics and may be prescribed in IX dilution on the following symptoms :

(i) Constant chilliness ; the patient hugs fire ;

(ii) Intense itching and muscular soreness ;

(iii) Cough, hard and painful ;

(iv) Constant or periodic sneezing with irritating discharge from the nose.

(v) Great torpor and apathy.

(3) **Eupatorium Perf.** In early stages of the disease, when there are bone-breaking pains with bilious disorders ; the cough is so hard that it hurts the chest and the head, and the patient is obliged to hold the chest with hands ; much soreness and aching of the entire body ; hoarseness with great soreness of larynx and upper respiratory tract ; coryza with thirst, but drinking causes vomiting.

(4) **Baptisia.** This remedy should be used, when there are putrid diarrhoeic stools in gastro-intestinal affections with griping pains. It has been found more efficacious in lowest potencies.

(5) **Arsenicum.** It will cut short an attack, if there is a copious flow of coryza periodically with languor and prostration, and the upper portion of the respiratory tract is involved. In addition to this, there ought to be burning, dryness and copious, irritating secretion and involvement of the conjunctiva.

(6) **Sabadilla.** Excessive sneezing, shaking the whole body and lachrymation on going into open air are the most characteristic symptoms. Frontal headache, dryness in mouth, without thirst and cough, worse on lying down are additional symptoms; shudderings with chills creeping upwards. The throat is swollen and the pain is worse on empty swallowing.

(7) **Arsenic Iodide.** Suited to cases of true influenza with chills, flushes of heat, severe fluent coryza, irritating and corrosive discharge, sneezing and prostration.

(8) **Dulcamara.** The best remedy in the acute stage, if it is brought on by damp cold and changes in the temperature of the weather. There is also muscular soreness, the cough, which hurts, and sore throat.

(9) **Bryonia.** This would be useful, if the trouble is bronchial going downwards; cough dry with pain in the chest; tongue heavily coated; lips dry and cracked; fever with full, hard pulse, severe frontal headache.

(10) **Sanguinaria Nitrate.** Especially indicated when the trachea and larynx are affected.

(11) **Phosphorus.** Is a great post-influenza tonic for debility.

(12) **Rhus Tox.** Applicable to cases where influenza fever is promoted by exposure to dampness or by getting wet, and it has some symptoms which are similar to the typhoid fever, *i.e.* burning tongue, drowsiness and delirium. Additional symptoms are restlessness in the night, aching pains in all the bones with sneezing and

coughing, cough worse in the evening ; caused by tickling behind the upper part of sternum ; much prostration and depression.

(13) **Causticum**. The soreness and bruised condition of the body must be accompanied with involuntary urination and coughing. Besides these, Compare also : *Sticta* ; *Tuberculinum*, *Allium cepa* ; *Camphor* ; *Eucalyptus* ; *Lobelia Cerulea* (sneezing influenza).

MEASLES (MORBILLI, RUBEOLA)

Definition :

Measles is an extremely infectious febrile disease characterised by a maculo-papular rash and early catarrh and fever. It is principally a disease of children, but may afflict persons of any age who have not been previously attacked by its virus. The incubation period is from 10 to 14 days with occasional cases, having an upper limit of 17 days. Measles is prevalent during the first 6 months of the year with a peak incidence in March.

Etiology :

Measles is caused by a virus which induces the disease in man and monkeyes. During the catarrhal symptoms, there are red spots, popularly known as *Koplik's spots*, upon the roof of the mouth and fauces, at least twelve hours preceding any sign of eruption on the external skin. During the naso-pharyngeal washing of throat, this virus is transmitted, before the appearance of the rash on the 4th day, to the surrounding atmosphere, and regenerates itself in the person who gets infected by it through breath, mostly, during the late winter months. Spread can also take place by direct contact or droplet infection. Children of both sexes are usually affected. One attack usually gives a lasting immunity, but relapses are not altogether absent.

The incubation period is about 10 days upto the commencement of the Catarrhal stage and 14 days before the appearance of rash.

Clinical Description :

Prodromal stage. This stage lasts for 3 or 4 days. It is a febrile-catarrhal period, Characterised by congestion of mucous

membranes and the presence of *Koplick spots*. The period is called the "enanthem period" in which there is no appearance of specific rash. Other symptoms and signs are nasal catarrh, sneezing, conjunctivitis, some swelling and watering of the eyes. In addition, a short cough appears with hoarseness and photophobia on the second day. The recognition of measles is made by the presence of Koplick spots, on the mucous membrane of the mouth, which are small white spots often compared with grains of salt surrounded by narrow zone of inflammation. These spots may be in large numbers on the outside of the cheeks. The disease is highly infectious during this stage.

Exanthematous stage. After the Catarrhal stage, the Koplick spots disappear and skin rash develops in dark red macular spots. The rash is first seen at the back of the ears and at the junction of the forehead and the hair. Within a few hours the whole skin area is invaded with accentuation of fever. When the rash is fully developed, it tends to deepen in colour and then fade into brown staining. Finally there is a branny desquamation of the skin.

Complications :

In nearly every case, *pharyngitis* is common ; in others *bronchitis*, which occasionally aggravates into *broncho-pneumonia* may be present as a result of streptococcus infection, or the influenza bacilli due to the virus, or measles itself. Some of these cases may take a long course and may become unfavourable. Persistent conjunctivitis may be followed by corneal ulceration. Corneal ulcer requires immediate attention.

Differential Diagnosis :

In the pre-eruptive stage, measles may be mistaken for acute bronchitis, or for influenza, or in case of laryngitis, for diphtheria. Special laboratory tests, however, for the recovery of the virus, will assist in the correct diagnosis of the cases. Generally the onset with catarrhal symptoms and the rash on the 4th day, first upon the face, will serve to indicate the disease.

Prognosis :

Prognosis is generally favourable, unless children under 3 years of age are involved in serious complications of broncho-pneumonia, colitis, severe cerebral and cardiac disturbances.

Treatment :

General. (1) The segregation of the patient is essential for at least three weeks.

(2) **Morbillum 30**, if given to the members of the family daily for some time, will prevent the disease from spreading or will serve to mitigate its effect.

(3) Daily, tepid sponging and periodic enemas and liquid diet containing milk and glucose are necessary.

(4) Protect patient's eyes from light by screens or goggles.

(5) For itching apply vaseline.

Curative :

(1) **Gelsemium**. A very useful drug in cases of undeveloped eruption and even after its appearance, it is often indicated. It has aching in the limbs, chilliness and fever. The patient is in different and does not want to be disturbed. Watery coryza corrodes the upper lip and nose ; a harsh, barking, croupy cough with chest soreness and hoarseness ; pain at the base of the brain.

(2) **Dulcamara** has also aching in the limbs, but less coryza than *Gelsemium*. It is also useful at the undeveloped stage, provided the catarrhal and other symptoms arise from damps, cool air, rainy, weather, or sudden changes in temperature.

(3) **Aconite**. At the very commencement, when measles may be suspected and there are symptoms of anxiety, restlessness, fever, coryza, a hard croupy cough and sensitiveness to light and noise. In case there is no restlessness and anxiety, instead of *Aconite* *Ferrum Phos.* may be given.

(4) **Euphrasia**. Acid tears flow from the eyes with red and swollen eyelids. The cough is dry and very hoarse. These infuse throbbing headache which subsides with the appearance of the eruption. The sensitiveness to artificial light is greater.

(5) **Pulsatilla** will be found useful when the fever has subsided or disappeared and there are coryza and profuse tears from the eyes. The cough is slightly loose during the day and remains dry during the night. Diarrhoea, which indicates the content of the intestine, is the most important symptom for the selection of this remedy. Earache and sometimes sickness, or nausea is also present.

(6) **Antim Tart** is the remedy for retarded or suppressed eruption together with difficulty in breathing rattling of mucous, bluish face, drowsiness and twitchings.

(7) **Bryonia**. Comes in when rash appears late or the development is too slow or irregular which in turn brings the chest symptoms or bronchitis. The cough is dry and painful and there is soreness of the limbs and the body with stitches in chest.

(8) Besides note for chest complications the following : *Sticta*, *Rumex*, *Phosphorus*, *Drosera* and *Sabadilla*.

(9) **Zincum Metallicum** is used when the child is too weak to develop the eruption. So *Sulphur* is a great remedy when the rash that appears sparsely is purple or dusky in colour.

(10) **Arsenium** must be used in malignant and unfavourable cases with sinking strength ; haemorrhage, delirium, offensive stools, general typhoid conditions. Similar are the remedies.

(11) **Crotalus**, **Baptisia**, **Lachesis** and **Stramonium** to be used in grave cases. *Cuprum Aceticum* is to be used in convulsions due to retarded eruption.

GERMAN MEASLES, (Rubella, Rothein)

Definition :

This is an infection of children and young adults, but is much less frequent in India and has a milder course with its pale pink rash and inflammation of the gland of the posterior neck. The incubation period is about 18 days.

Etiology :

The causative agent (*Rubella*) is considered to be a virus, largely on the basis of its filterability. Its presence is demonstrated in

human beings and monkeys. The virus is detectable in both blood and naso-pharyngeal washings soon after the rash appears, or may be found in the blood two days before the eruption. Rubella spreads by direct contact and by droplet infection from the naso-pharynx.

Symptoms and Signs :

Fourteen to twentyone days after the exposure to infection, the onset is manifest by the following symptoms. Most of the the symptoms are accompanied by nasal catarrh and conjunctivitis, some stiffness of the neck and development of cervical glands may ensue. Rash on the second day may be the first indication. Pink macules should appear first behind the ears and on the forehead. There may be a generalised enlargement of lymph nodes in addition to those in the neck. The whole disease is over in 2 or 3 days and the rash fades away without any peeling off (desquamation).

Complications :

Recovery is always prompt and uneventful, although relapse occurs with greater frequency than with most virus diseases. Rare complications are : pain in a joint without inflammation (arthralgia) ; inflammation of the gums ; neuritis (inflammation of the nerves).

Diff. Diagnosis :

There may be some difficulty in distinguishing the disease from :

(a) Scarlet fever owing to the rash having faded from the face on the second day. The following symptoms will indicate scarlet fever :

- (1) short incubation period (2 to 7 days),
- (2) vomiting, sore-throat, shivering or severe headache,
- (3) fever is high and pulse rapid,
- (4) the circumoral (surrounding the mouth) region is usually free from rash and by 4th day the tongue has heeled off,
- (5) cervical adenitis and nephritis may occur.

(b) The absence of severe coryza and *Koplik's spots*, the presence of enlarged glands, and characteristic rash will serve to indicate rubella and distinguish it from measles.

Treatment :

Refer to "Measles". Besides, compare the following remedies also ACON. ; BELL. ; COPAIVA ;

CHICKEN-POX (VARICELLA)**Definition :**

Chicken-pox or water-pox is a mild communicable disease of childhood, characterised by fever and a vesicular blister-like eruption with the reddening of the skin around the vesicles, appearing in successive crops and involving the entire skin over the entire body and mucous membranes of the mouth and the throat. Varicella often prevails epidemically with occasional isolated cases. The incubation period ranges from 11 to 14 days. Usually it is a fortnight.

Etiology :

The agent of infection is a virus found in the vesicular fluids in largest amounts within 48 hours of the appearance of the eruption. The size of this virus is about two-thirds of the size of the small-pox virus ; but both are similar in their shape and form. The chief communication of the virus is by the air-borne route, although direct contact and droplet hits from sneezing, coughing, or speaking play quite an important role. The virus apparently enters either through the respiratory tract or by contact from the vesicles on the skin during the early stages of the eruption, but perhaps never after the appearance of crusts. The eruptions appear on the trunk on the 2nd day of illness, then the face, and finally the limbs are involved.

Symptoms & Signs :

Prodromal period. In children this period may be absent or confined to slight pyrexia and increase in pulse rate. Adults, however, may exhibit prodromal symptoms, such as, malaise, nausea and pain in the back for a period of 24 hours before the eruptions appear. Occasionally there is a prodromal rash. These lesions are sometimes present in the palate before the characteristic rash appears on the second day of illness. The face is first involved, then the trunk and finally the limbs. The maximum density is on the trunk and sparse on the limbs. The lesions which are macular at first become papular

within a few hours and then pass on to the Vesicular stage. Within 24 hours, they then become pustular. There is itching and damage from scratching is often frequent. These spots dry up in a few days to form scabs.

It may be noted that there is universal acceptance of the fact that Herpes Zoster due to virus of chicken-pox may remain dormant in the system of the patient who has suffered from chicken-pox.

Complications :

The skin or mouth infection by streptococci or staphylococci may complicate the disease in children, who are predisposed to bronchitis, boils and abscesses. Cerebral symptoms sometimes appear and create difficulties. Pneumonia may occur in neo-natal or adult life and cause a very serious illness.

Differential Diagnosis :

Varicella must be differentiated from *small-pox* which spreads uniformly over the body in larger numbers on the third day and involves the skin more deeply. Again *urticaria* and *herpes-zoster* also confuse its identification. The characteristics of the latter disease will be described latter. Initial symptoms of small-pox are high fever and great constitutional disturbances ; while under chicken-pox, there are very Mild constitutional disturbances, and the rash is not so marked as in small-pox.

Treatment :

General. (1) Segregation of the sick immediately for about 3 weeks is essential.

(2) Rest in bed and light diet is advised.

Curative :

This disease seldom needs any treatment. The occasional troublesome symptoms may be met by *Aconite*, *Mercurius Sol.* and *Bell.*, *Antim Tart*, *Pulsatilla*, *Rhus-Tox* and *Hydrastis*.

SMALL-POX (VARIOLA)**Definition :**

Variola is an acute highly infectious fever, characterised by severe systemic symptoms and a single crop of deep-seated skin eruptions, all proceeding at the same rate through successive stages of macular, (discoloured and unraised) papular, (raised and elevated) vesicular, (filled with fluid) and pustular (filled with pus) spots within a period of about 10 to 12 days or at the most 16 days (incubation period).

Etiology :

The infective organisms are 4 viruses that pass into the human body directly without a carrier. These are :

- (1) Variola major,
- (2) Variola minor,
- (3) Cow pox, and
- (4) Vaccinia.

The virus remains active in the dried scabs for a long time and enters a human organism either by inhalation of droplets, or dust, or contact directly or through various articles including clothes, bed-sheets which remain infective pretty long. The virus possibly floats in the air up to some distance and is inhaled by a healthy susceptible subject. It is not essential that there should be a close contact with the virus. Infection with small-pox is generally through the respiratory tract and may be direct or indirect.

Symptoms :

After about 9 days of incubation, the first stage begins with a shaking chill or repeated chill sensations, followed by fever, rising to about 103° to 104°F and accompanied with painful headache, shivering, dreadful backache, sore-throat, stomach pain, and general soreness of the body. In some cases, there may be delirium and convulsions. The fever rises during the first three days with slight remission in the morning. In the third stage, *i.e.*, about 10 days after, the patient complains of great tension, burning skin, heat of the body etc. This is the height of the disease.

Signs :

The second stage begins on the third day, when red spots or raised papulae first appear on the face and then on the neck, chest and back and coalesce particularly on the face, where they are more in evidence. As these vesicles grow, they depress in the centre. Simultaneously, tears from eyes, photo-phobia, or total closure of eyes, salivation from the mouth, cough with difficult swallowing are observed. The commencement of THE THIRD STAGE, on the 10th day or so, is the most difficult one during which complications might arise on the eleventh or twelfth day. The fever begins to abate and the process of amelioration starts with painful symptoms, gradually disappearing, and the eruptions drying up and peeling off. Altogether the disease takes nearly three weeks to reach the normal stage.

Complications :

These may be :

- (1) several septic processes, *e.g.*, boils, ulcers, bed-sores, and enlargement and suppuration of various lymphatic glands,
- (2) bronchitis and broncho-pneumonia by streptococci infection,
- (3) heart complications,
- (4) eye troubles, *e.g.*, conjunctivitis and corneal ulceration,
- (5) inflammation of tongue diarrhoea, colitis,
- (6) albuminuria, and
- (7) nervous complaints.

Diff. Diagnosis :

(1) The initial fever with much pain, headache, and debility may be mistaken for influenza, rheumatic fever, *malária* or cerebro-spinal fever.

(2) The eruptions may be confused with chicken-pox, scarlet fever and other bodily eruptions.

(3) In scarlet fever, however, there is tonsillitis, and redness of the soft palate, not present in small-pox. In chicken-pox, fever

follows the eruptions which are vesicular and have no pus, nor they are depressed like those of small-pox; while in scarlet fever the eruptions appear earlier than in small-pox, and do not have the characteristic changes of small-pox.

Prognosis :

Prognosis in small-pox depends largely upon the severity of the particular cases. In the modern vaccination period, the rate of mortality is very low. With the advent of homoeopathic treatment, the complications have been successfully averted. If the initial fever is slight, the prognosis is usually good.

Treatment :

General : (1) The prophylactic drugs for small-pox are three:

- (i) Malandrinum,
- (ii) Vaccininum,
- (iii) Variolinum.

(2) The patient may be isolated for the whole period.

(3) The beddings and clothings should be regularly disinfected, and hands and other extremities should be washed with a powerful disinfectant.

(4) Diet is restricted to milk, glucose and fruit juice. Plenty of fruits should be given.

Curative :

(1) **Aconite** should be used, when there is a sudden rise of temperature with high fever in the initial stage, when thirst and restlessness prevail.

(2) **Gelsemium**. During the first stage, when there is fever, aching in the back and limbs and tight-band headache and indifference and dullness.

(3) **Belladonna**. Congestive and severe headache, backache, red and purplish face; want to sleep, but is unable to do so.

(4) **Bryonia**. When the eruption is slow and irregular and other symptoms, *i.e.*, headache, fever nausea, etc. are aggravated by motion.

(5) **Ant Tart.** It is considered a preventive drug and so may be given at the start. It will also help the eruptions to appear, if they are retarded. It will especially suit cases :

- (i) where there is gastric irritation or disturbance,
- (ii) when chest is involved in broncho-pneumonia with rattling cough, little expectoration, and drowsiness, and
- (iii) vesicles and pustules grow rapidly.

(6) **Variolinum** and **Vaccininum** are recommended, as these are sufficient to ameliorate the symptoms of the disease. The changes are bound to be rapid under the influence of these drugs.

(7) **Apis** may be used for much swelling and itching of eruptions.

(8) **Arsenicum** : to be used in unfavourable cases, where there is haemorrhage, weakness, burning, restlessness and irregular growth of eruptions, along with diarrhoea.

(9) **Other remedies.** Camphor, Coffea, Mercurius, Opium, Rhus Tox. Stramonium, Sarracinea, Sulphur, Thuja, Anacardium, Lachesis, Crotalus and Baptisia.

VACCINIA

Definition :

Vaccinia is an infectious condition normally produced intentionally by inoculation with vaccinia virus. Accidental infection also occurs. Following the appearance of a vesicular skin lesion, antibodies develop which protect against small-pox.

History :

By the 18th Century, it had become apparent in England that individuals accidentally inoculated with cow-pox were protected against small-pox. In 1776 Jenner made practical use of this fact by inoculating a boy with matter from a cow-pox lesion on a milkmaid's hand. Subsequent inoculation of the boy with various material failed to produce small-pox.

The source of vaccinia virus in use today is uncertain but it probably originated from cow-pox. However the vaccinia virus and cow-pox viruses are now distinct. Vaccinia virus is propagated in healthy calves or sheep, the contents of the vesicles being collected, treated with glycerine and frozen. The glycerinated calf lymph is repeatedly tested for bacteriological contamination. It remains active for at least 8 months, if stored at low temperature. Vaccine free from bacteria can be prepared by culturing the virus on the chorio-allantoic membrane of chick embryos, but the protection afforded seems to be less than that obtained with calf-lymph. Because of the slight risk to the vaccinated subject as well as to others inherent in the use of a vaccine, containing live virus, search continues for the preparation of vaccine from killed virus.

Results of Vaccination :

Primary Vaccinia. Irritation begins at the site of inoculation within 40 hours. A papule appears on the third day. Vesiculation starts on the 5th day and reaches its maximum by the 8th day. The lesion is surrounded by an area of inflammation and is by now a centimetre in diameter, but its size will depend on the length of the scratch or number of pressure. The contents of the vesicle become turbid and the pustule enlarges slowly till the tenth to twelfth day, when it dries up with the formation of a scab. This separates in due course to leave a pitted scar which remains for life. Successful primary vaccination without such a scar must not be assumed.

Symptoms :

Vaccination is accompanied by viraemia. Headache, fever, malaise and tender axillary nodes commonly occur between the eighth and tenth day. But such constitutional symptoms are slight in babies and children under 10 years of age.

Sometimes the local reaction is without vesiculation or there is no reaction at all. The first condition may be due to immunity, but it may well be due to poor technique, faulty lymph and other causes. Re-vaccination should be ordered, unless it is certain that the subject has immunity from small-pox. In the second case also,

the condition may be due to immunity or failure. In each case another attempt should be made with a fresh lymph.

(1) The most common complication of vaccination of vaccinia virus is that of pus or septic infections resulting from dirt, neglect, scratching and other skin infections from staphylococcal bacteria.

(2) Another complication, which is a rare phenomenon, may be a slowly spreading gangrenous process from the site of vaccination with severe toxæmia which may prove fatal.

(3) Encephalitis, (inflammation of the brain) is a rare consequence of vaccination. If it does occur, it generally takes a very serious and unfavourable turn.

Treatment :

(1) **Thuja.** It suits the sycotic and scrofulous subjects especially in the eruptive stage of the disease with milky, flat painful pustules upon a dark-inflamed area with offensive smell.

(2) **Hydrastis Can.** It will prevent the disease from taking a serious turn. It should be administered, when there is a great swelling, redness, itching and soreness of throat.

(3) **Mercurius Sol.** It will be useful at the suppurative stage of the pustules with no fever and plenty of saliva flowing.

(4) **Sulphur.** Give one dose of 30th potency as soon as the pustule is formed to avoid any future complication.

DENGUE

(Break-Bone fever)

Definition :

Dengue or break-bone fever is an acute, specific febrile disease that starts epidemically and is characterised by a sudden onset with fever, severe bodily pain particularly in the loins, slow pulse, decrease in red-blood corpuscles, and measles-like skin eruptions. There is a possible remission of fever on the third or fourth day with a recurrence after eighteen to thirty hours. Sometimes the rash

appears during this remission period or with the second rise of temperature on the third to fifth day. The disease is seldom longer than 10 days.

Dengue and sandfly fever are clinically two similar diseases, both being acute, short febrile infections of one to seven days' duration without leucocytosis and with no appreciable mortality. The latter is sometimes known as '*Sandfly dengue*'.

Etiology :

The specific causative factor of dengue is the group B abrovirus which is conveyed by the mosquito, "*aedes aegypti*" on biting an infected person. The virus contained in the infected blood takes about 8 to 14 days to become infective and remains infected for the rest of its life. The patients' blood is infective for the mosquito during the first 2 days of the illness. This is a disease of most of the tropical countries including India and occurs at the end of the rainy season. All persons, irrespective of age and sex, are liable to get infected. The disease is a periodic one and may occur after every five years or so. Heat and moisture help in promoting the disease. A previous attack usually confers immunity.

Symptoms :

(1) Sudden onset of fever, with chill, and fever rising to 102°—105°F, accompanied by intense headache.

(2) Intense pain over the whole body especially in loins and eye-balls.

(3) Severe backache and pain in joints, aggravated by motion.

(4) Spine and limbs become stiff in some cases and the patient is in agony.

(5) Occasional bleeding from nose.

(6) General depression and insomnia.

(7) Possible diarrhoea at the remission stage.

Signs :

(1) Face, eyes and even the whole body is flushed.

- (2) Tongue usually dry and coated.
- (3) Loss of appetite, nausea, vomiting and constipation.
- (4) Face often bloated and conjunctive red.
- (5) Mucous membranes of mouth and fauces, red and congested.
- (6) Pulse at first rapid, but soon becomes slower than what the temperature ensures.
- (7) The temperature drops after 3 to 4 days and may be associated with sweating etc.
- (8) Eruptions may appear at the end of the 7th and 8th days after the second rise of temperature.
- (9) Marked leucopenia.

Diff. Diagnosis :

Dengue has to be differentiated from *influenza*, *measles*, *rheumatic fever*, occasionally from *malaria* and *typhoid fever*. In *influenza*, the upper respiratory tract is involved. In *measles* there is early coryza and the rash is typical. *Rheumatic fever* has arthritis which passes from joint to joint. *Malaria* and *typhoid* are verified by laboratory tests. It is distinguished from scarlet fever by its being rarely associated with sore-throat, or particular pains, or by occurring in hot weather.

Prognosis :

Death from uncomplicated cases is almost negligible. In severe epidemics, the rate may be higher, because of the advanced age and diseases of the brain, heart and kidneys.

Treatment :

General. All breeding places of the mosquitoes should be destroyed or sprayed with D.D.T.

- (2) Use of mosquito-net is advisable at bed time.
- (3) Diet should be liquid with other fluids ; during convalescence, the diet may be increased slowly.
- (4) Rest is essential, and should be prolonged for people of advanced age.

Curative :

For full indications of the following remedies, refer to *Influenza* :

(1) **Aconite**. During the first onset to be followed by Rhus Tox, if necessary.

(2) **Eupatorium Perf.** when bone pains are severe.

(3) **Echinacea** for flushed face, rash, pains in head and eyes, low fever and drowsiness.

(4) **Gelsemium** followed by Rhus Tox, if necessary, in case of the second onset.

(5) Besides, compare, for various other indications, the following also ; Arsenicum ; Bryonia ; Cinchona ; Ipecac ; Rhus Venenata ; and Nux Vomica.

Coxsackie Virus Infections

The *Coxsackie Viruses* received their name from the town where the two patients lived, from whom Dalldorf recovered the virus, known as Coxsackie A, by inoculation of their faeces in newborn mice in 1943. There are two types of viruses which have been divided into two broad sub-groups, A (24) and B (6). The A group viruses tend to produce mostly diffuse acute inflammation and necrosis of the muscles ; while the B group produce necrotic lesions in the brain, pancreas, liver, and myocardium and focal areas of necrosis of the skeletal muscles. Some types cause disorders at any time (sporadic), while there are others, which are epidemic in nature. Here we shall deal with only one epidemic disorder, called "*Epidemic myalgia*".

EPIDEMIC MYALGIA

(Pleurodynia) or (Bornholm Disease)

Definition :

The disease obtained its most common name from the description of cases in outbreaks on the Danish island of Bornholm by Sylvest in 1934. It is an acute viral disease of short duration, characterised by a sudden onset of severe spasmodic pain in the region of the diaphragm in the upper abdomen or lower throat.

Etiology :

Soon after the first coxsackie virus was recovered by Dr. Dalldorf from a patient suffering from poliomyelitis, other workers recovered similar viruses from patients having Bornholm disease with the B group virus.

Symptoms & Signs :

(1) The incubation period is 2 to 14 days.

(2) The onset starts suddenly with fever, headache, severe pain in the lower chest and abdomen and sometimes in limbs and lumbar muscles.

(3) The pain is spasmodic ; breathing is rapid with suppression of breath sounds.

(4) There may be muscle tenderness and cutaneous hyperaesthesia and pleural friction.

(5) Some patients may have pharyngitis, coryza or meningitis.

(6) In widespread epidemics, pericarditis and orchitis may also be present in other patients.

(7) The initial attack is usually finished in two days but fever and less severe pain may persist for a week. Recurrence of pain and fever after a few days is not uncommon.

Diff. Diagnosis :

The differentiation from *acute pulmonary* or *abdominal pain* is difficult at the initial stage of the outbreak. But the tendency of having a normal blood count or a slight leucopenia is more suggestive of virus infection.

Prognosis :

This is good, once the etiology is recognised.

Treatment :

(1) **Ranunculus Bulbosus.** The remedy acts upon the chest walls, causing pain like pleurodynia, which is worse from change in

weather. The pain is so intense sometimes that the patient does not move. It has a left-sided inflammatory pain.

(2) **Aconite** is useful, if the attack has been brought by exposure to dry cold wind, and fever is present.

(3) **Cimicifuga**. This is useful when the pain is worse on the right side, especially if it is due to uterus trouble or a hysterical attack. It is also used for left-sided pain below the mammary gland. The pain may be accompanied by a sense of faintness at the pit of the stomach.

(4) **Arnica**. For pain or rheumatic pleurisy from over-exertion. The chest feels bruised. The pain is increased by motion and still more by pressure.

(5) **Rhus Radicans** has pleurodynia with pains shooting down into the shoulder.

(6) **Gaultheria** is suitable for pains located in the anterior mediastinum.

(7) **Bryonia**. Here the pains are stitching and tearing, aggravated by motion and by expiration. They are diminished by lying down on the affected side. (*Nux Vomica*, cannot lie on the affected side). It is especially indicated in rheumatic diathesis.

VI

Metazoal Infections

(*Nematodes*)

FILARIASIS

Definition :

Filariasis occurs in man as a result of infection with certain filarial worms including *Wuchereria bancrofti*, *Brugla malayi* commonly called bancroftian and Malayan filariasis respectively. Tropical eosinophilia often results from the presence of unadapted filarial larvae in the human tissues.

Etiology :

Bancroftian filariasis is spread widely in the tropics and sub-tropics. The Malayan filariasis is more restricted, and is found in India, Ceylon, South-East Asia, and New Guinea.

The development of the worms in man in the two infections is the same. It takes six months or longer for the larva to develop to the adult stage. The adults survive in the human for years. They are fine, filiform worms up to 10 cm. long, lying coiled in lymphatics and lymph nodes especially in the region of the pelvis and the genitalia. Females produce sheathed embryos in large numbers which eventually reach the blood stream and appear in the peripheral blood.

In many endemic areas, the microfilariae of *W. bancrofti* appear in the peripheral blood in greatest numbers at night between 10 p.m. and 2 a.m. and are scarce or absent during the day.

The transmission of bancroftian filariasis is carried on by mosquitoes, the most widely distributed vectors being species of *Culex*, *Aedes* and *Anopheles*. The common vector or carrier is *Culex fatigans*. The Malayan form, which has the same nocturnal periodicity, is transmitted by certain species of *Mansonia*, breeding in water containing plants and by the species of *Anopheles*, breeding in pools and ditches. Man is infected easily, but animals only with difficulty. The vector or carrier becomes infected by ingesting or sucking blood containing infective microfilariae. These escape from their sheaths, penetrate the wall of the insect's gut and are eventually transmitted to the infective larvae which reach the proboscis in 2-3 weeks. The flies, then, are infective and transmit infection by passing the larvae to man during the bite.

It is generally agreed that continued reinfection over a long period is necessary for the full development of the clinical picture which occurs much more commonly in inhabitants than in visitors. The full manifestations of the disease develop in youth or in early adult life. Certain features, such as *hydrocele* or *elephantiasis* persist throughout life.

Symptomatology :

(1) The incubation period is between 8 and 12 months.

(2) Early features which are inflammatory and obstructive are manifestations of bouts of fever accompanied by pain and tenderness along the course of inflamed lymphatic vessels over which there is cutaneous erythema.

(3) In advanced cases, in addition, there may be some scattered urticaria.

(4) Inflammation of the spermatic cord, epididymitis and orchitis may be caused by lymphangitis. After a few days, the fever abates and symptoms and signs subside.

(5) Further attacks of filariasis are likely to follow and the oedema from obstructed lymphatics tend to become more persistent.

(6) The lymphatics of the lower limbs, the scrotum and upper limbs are most frequently affected.

(7) The earliest effects may be the production of hydrocele.

(8) Permanent obstruction of the main trunk of a limb causes progressive enlargement with ease, until the leg resembles like that of an elephant. This condition is known as "elephantiasis."

(9) A similar condition may involve the upper limb, the scrotum vulva or breast.

(10) The interval between infection and the onset of elephantiasis is usually not less than 10 years.

Diff. Diagnosis :

The acute stages of filariasis must be distinguished from other causes of *lymphangitis*, *lymphadenitis* and *orchitis*.

The obstructive stages and elephantiasis may be difficult to distinguish, except by the exclusion of other causes of obstruction of lymph flow, such as, metastatic carcinoma.

Worms may occasionally be seen in radiographs of glands or elephantoid tissue. In the intermediate stages of the disease, microfilariae may be found in the blood, if examined at the right time.

Treatment :

General : Prevention of filariasis is a difficult problem and belongs to the department of Health, for it involves the clearance of mosquito-breeding sites and places. Use of mosquito nets will be of immense advantage.

Curative :

The remedies given under 'Malaria' apply in this disease also, at the febrile stage.

Elephantiasis :

- (1) **Elaesis** (thickened skin, hardened and itching).
- (2) **Hydrocotyle** (great thickening of epidermoid layer and exfoliation of scales).
- (3) **Anacardium** (skin symptoms similar to Rhus).
- (4) **Myristica Sebifera** (inflammation of skin, cellular tissue and periosteum).
- (5) **Arsenic Alb** (epithelioma of skin).
- (6) **Silicea** (elephantiasis of scrotum).

Hydrocele :

- (1) **Apis** (serous inflammation of testes).
- (2) **Aurum** (chronic inflammation of testicles).
- (3) **Cal. Fluor** (induration of testes).
- (4) **Conium** (testicles hard and enlarged).
- (5) **Fluoric Acid** (swollen scrotum).
- (6) **Graphites** (swollen genitals).
- (7) **Iodium** (testicles swollen and indurated).
- (8) **Pulsatilla** (orchitis).
- (9) **Rhododendron** (induration and swelling of testicles after gonorrhoea).
- (10) **Spongia** (swelling of spermatic cord and testicles with pain and tenderness).

Inflammatory fever :

- (1) Aconite.
- (2) Bell.
- (3) Bry.

Lymphangitis :

- (1) Apis.
- (2) Ars. Iodide.
- (3) Merc. Sol.
- (4) Lachesis.

Adenitis :

- (1) Apis.
- (2) Bell.
- (3) Iodium.
- (4) Phyt.

ASCARIASIS**(Round Worm infection)****Definition :**

Infection with the nematodes, *Ascaris Lumbricoides*, the biggest of the round worms, which infect man, is termed *Ascariasis*. It occurs in all parts of the world, where living conditions are dirty.

Etiology & Pathology :

The adult worms are large, white and cylindrical with pointed ends. The females are 2 or 3 inches longer than fully developed males. They live in the small intestine and get their nourishment from the intestinal contents. The females pass eggs, which escape into the faeces. An infective larva develops in the fertilized eggs, which are frequently blown about in the dust. A human being is infected by swallowing these eggs, which hatch in the intestine and produce larvae which penetrate the wall of the intestine, and are carried in the circulation to the lungs, where they lodge for a short time, and then penetrate the alveoli and are eventually expelled via

the bronchioles, the bronchi and the trachea. They are swallowed, pass through the stomach, and reach the small intestine, where they develop into adults.

Symptoms & Signs :

(1) Initially, when there are a few worms, there may be occasional gastro-intestinal discomfort and mild diarrhoea.

(2) The adult worms may either appear in the stool, or if they wander into the stomach, may be vomited.

(3) If they ascend the bile duct, they cause obstruction, associated with cholangitis and jaundice.

(4) When the child is heavily infected, he is the under-nourished, underweight child with a protuberant belly, constant intestinal discomfort, frequent diarrhoea, often visible peristalsis and complications which include intestinal obstruction, perforation or volvulus (twisting of bowel.)

(5) Slight fever.

Diagnosis :

This is made

(1) by discovering a worm in the stool, or

(2) by observing eggs in stool.

Prognosis :

This is good except in cases where obstruction or grave injuries have been caused by the worms.

Treatment :

Preventive. (i) Proper disposal of the stool, and

(ii) general cleanliness should be observed.

Curative :

(1) **Cina.** A good remedy for round worms, when the patient is cross and irritable, has a sickly pale face with rings about the eye and a bluish colour about the mouth, grates teeth at night and has a tendency to convulsions, and has abnormal hunger or a variable appetite.

(2) **Cicuta V.** is a good remedy for convulsions.

(3) **Sabadilla.** It is useful when there is nausea, vomiting and colic.

(4) **Ignatia.** When the patient is excited and has a tickling at the anus. This remedy is really for seat-worms.

(5) **Spigelia.** Faint nauseated feeling with colic about the navel, caused by the presence of worms and associated with squinting and jerking indicates this remedy.

(6) **Stannum.** This remedy stupefies the worms. The main symptoms for its selection are pale sunken face and eyes surrounded by blue rings ; sluggish disposition, foul breath and fever.

(7) **Cuprum oxydatum Nigrum.** Removes all kinds of worms when given in low potency in alternation with Nux. Vom. four or five times a day for 4 to 6 weeks.

Calcarea Carb. It is a good constitutional remedy to eradicate the tendency to worms.

Koussou Brayera. It is recommended as a very efficient remedy for all sorts of worms.

ENTEROBIASIS (Thread Worm disease)

Definition :

Thread worm or pin-worm disease is an infection with *Entrobis Vermicularis*. It is one of the commonest and most widespread gastro-intestinal worm infection.

Etiology :

The geographical distribution is uninfluenced by climate. It is very largely dependent on dirty living conditions and self-infection.

The worm is a human parasite, small, white, and threadlike. The males have a coiled tail and about half the size of the females which may reach about half an inch (1 cm.) in length. The females only are found in the active case, since most males are destroyed in

the intestine. The adults live free in the lumen of the small and large intestine. They have an alimentary tract and feed from the intestinal contents. The females emerge from the anus on to the perineal and perianal skin. Here they die and disintegrate, liberating large numbers of characteristic eggs which adhere to the skin or the clothing and are transferred thence to the fingers and towels. The embryonated eggs rapidly develop and become infective. When swallowed, larvae escape in the intestine and male and female worms develop.

Symptoms and Signs :

- (1) Severe itching of the skin (anus) which may disturb sleep.
- (2) Scratching may result in secondary infection of the skin.
- (3) The fingers and nails become infected with eggs, and the patient is thus reinfected.
- (4) Cross-infection of the family is extremely common through linen and towels, contaminated with eggs.

Diagnosis :

The worms may be seen in the stool or the female worms may be discovered on the fingers after scratching. Eggs are rarely found in faeces, since they adhere firmly to the perianal skin. Eggs may sometimes be found contaminating urine in females.

Treatment :

- (1) Abrotanum,
- (2) Chelone,
- (3) Cina,
- (4) Ratanhia,
- (5) Spigelia, and
- (6) Teucrium.

ANCYLOSTOMIASIS **(Hookworm Infection)**

Definition :

Infection with the nematodes, *Ancylostoma duodenale* or *Necator americanus*, is the hookworm infection.

Etiology :

The distribution of hookworm covers most of the world. A duodenale infection occurs in temperate climates in Europe, in Middle East, North Africa and in certain areas of the Far East. It may occur under special conditions, (e.g. in the most warm environment of mines) in the colder parts of Europe.

N. Americanus is much more widely spread in the tropics including Africa, South Africa, the Middle East, India, the Far East, Central and South America, the Southern and Western United States and the Caribbean. It also occurs in Indonesia, Thailand and New Guinea.

Man is the natural host and harbours the adults in small intestine. Embryonated eggs are passed in the faeces.

The adults of *A. duodenale* measure up to half an inch in length. The female is just bigger than the male, the body slightly curved and tapered at both ends.

The adults of *N. Americanus* are smaller, finer and tapered. The head in both sexes is bent back.

The eggs, passed in the faeces, develop in warm moist soil and hatch in about 5 days. The active larva migrates to the soil and feeds on organic matter. After some development, the infective filiform larva reaches the ground surface and eventually penetrates the human skin. By the third day after penetration, it reaches the lungs, and, in the same manner as ascaris, the bronchi, the trachea and intestine. Adults mature in the upper parts of the small intestine in 3-5 weeks after infection, and attach themselves to the mucosa. Eggs are laid in the lumen and pass out in the faeces. The freshly passed egg is non-infective, and there will be no further development of the larva, if the faeces are allowed to dry. Development and hatching of the larva occurs only when the faeces are permitted to remain in contact with damp, light soil at a suitable temperature. The larva can penetrate any exposed area including the buttocks, but entry commonly occurs through the legs and feet. The infection is usually associated with filthy living conditions, the indiscriminate shedding of faeces, and the habit of going bare-foot.

Symptoms and Signs :

- (1) Mild infections produce no obvious signs.
- (2) Heavy infections in those lacking in iron reserves produce characteristic anaemia.
- (3) Children may become pale with a puffy face, protuberant abdomen, and sometimes ascites and oedema of the legs.
- (4) The patient complains of epigastric discomfort and shortness of breath.
- (5) Various signs of malnutrition are present ; the patient is mentally dull and retarded.

Diagnosis :

The diagnosis depends on the discovery of eggs of the worm in the faeces. An estimate of total number of eggs per gm. of faeces will give some idea of the worm load, but it is difficult to determine in this way the numbers involved. The only reliable method is to count the worms passed after treatment.

Treatment :

The following remedies will prove of real value :—

- (1) Carbon Tetrachloride,
- (2) Oil of chenopodium (10 minimum dose every 2 hours up to three days.)
- (3) Thymol (5 gm. doses every 2 hours upto 4 doses a day.)

CESTODES**(Tapeworm Infection)****Taeniaesis****Definition :**

Tapeworm disease is an infection with several commonest types of cestode worms which infect man in the tropics and sub-tropics. These infections are :

- (a) **Taenia Saginata,**

- (b) **Taenia Solium,**
- (c) **Hymenolepis Nana,**
- (d) **H. diminuta,** and
- (e) **Echinococcus granulosus.**

The first two are cyclo-phyllidian tapeworms, the next two are dwarf tapeworms and the last one is the dog tapeworm. With the exceptions of echinococcus which occurs in the larval form, all other forms occur in man in the adult form. In all adult infections, the worms attach themselves by the head to the small intestinal mucosa. They have no buccal cavity and absorb their nutriment through the integument (a covering).

Taenia Saginata :

This is a common beef tapeworm. It is a human parasite and is found in wide areas of the world. It is a large, white and ribbon-like segmented worm and measures more than 20 ft. in length, the broadest segments being three-quarters of an inch across. The head is minute and provided with 4 sucking discs without hooks. With these it attaches itself to the mucosa of the small intestine. When fertilization occurs, the uterus of the fertilized segments becomes loaded with eggs. The gravid segments break off as active units and escape through the anus or pass in the stool. The patient usually becomes aware of the infection by discovering the escaping segment. The diagnosis is made by examining the segment by immersion in water and compression between two glass plates. *T. Saginata* is distinguished from *T. Solium* by the larval forms which may exist in man, but this form is not found in the case of *T. Saginata*.

Taenia Solium :

In the developmental states, this worm follows much the same course as *T. Saginata*. The infection is acquired by eating "measely pork" containing larvae developed in the animal tissues following the ingestion of eggs. The development of adult in man is similar to that of *T. Saginata*.

Symptoms and Signs :

Unfortunately when man swallows eggs of *T. Solium*, cysticerci (larval form of tapeworm) develop in his tissues in the same way as

in the pig. The larvae liberated after ingestion of the eggs penetrate the intestinal mucosa and are carried by circulation in all parts of the body. They are eventually caught somewhere and encyst. When cysts develop in sensitive centres like the brain, localising signs and symptoms may develop *e.g.*, cysts in the brain may lead to attack of Jacksonian epilepsy or other neurological signs.

Cysticerci also develop in connective tissue and voluntary muscles. But damage is seldom caused, until the worm has died and tissue reaction has taken place around it. Lesions which result from cysticerci may produce symptoms many years after the infection. In some patients cysticercosis complicates intestinal infestation.

The prognosis is bad so far as cure is concerned, but a fatal end is uncommon.

Diagnosis :

This is made by the discovery and examination of the gravid segments of the worm after passage *via* the anus in the stool or by the identification of the adult worms discharged after treatment.

Treatment :

The following remedies are suggested :—

- (1) Kousso,
- (2) Geranium,
- (3) Filix Mas, and
- (4) Cuprum oxydatum nigrum, alternated with Nux.

SECTION II

Physical and other Environmental Factors

EXPOSURE TO HEAT

HEAT STROKE

Heat stroke or heat hyperpyrexia is a rise of body temperature following exposure to intense heat as in the desert, or in an engine room. In mild forms of the syndrome, the patient remains conscious and is sweating. When the temperature rises to 106°F or a little below this with central nervous signs and absence of sweating, the condition is known as Hyper-pyrexia. When the onset is very rapid and the picture is accompanied by coma and absence of sweat (anhidrosis), it is commonly called heat stroke. Most cases occur among those who are already ill from some other disease, such as, Malaria, typhoid and dysentery, or whose health is poor as the result of excessive consumption of alcohol, under nutrition or other factors. Constipation and the drinking of spirits during the hot period of the day are specially conducive to heat stroke.

Etiology :

The pyrexia arises as a result of exposure to heat of the sun or any other physical agent, but not to light. Exposure must be continuous usually for hours, as short exposures seldom precipitate hyperpyrexia syndrome. It appears more commonly in obese persons.

The predisposing factors are usually associated with interference with evaporation of sweat and its production. These include excessive or ill-ventilated clothing, lack of air movement especially in enclosed spaces and existing febrile illness. Overproduction of metabolic heat as in hyperthyroidism or from excessive muscular

activity may also serve as an initiating factor. Excessive intake of alcohol may itself predispose to heat stroke by increasing metabolic production of heat and by dehydration.

Clinical Picture :

(1) The onset is abrupt and often without any prodromal symptoms.

(2) Some patients may complain of headache, intense thirst, dizziness, restlessness and many become progressively confused, and some may observe an increasing failure of sweating after exercise. All this may happen a few hours before the onset.

(3) When the syndrome has developed, three cardinal features are observed:

- (i) Cerebral symptoms and signs.
- (ii) Absence of sweat and a hot dry skin, and
- (iii) A very high temperature.

In most cases, the patient is restless, comatose or delirious ; convulsions and muscular twitching in the limbs may be present. The temperature is as high as 106°F, or even more, the pulse is very fast, above 150 beats per minute. There may be soft, systolic murmurs. The blood pressure is generally normal. Breathing is shallow and may become stertorous. If dehydration occurs, flow of urine will be low.

Diagnosis :

The three factors, viz, high fever, dry skin, and cerebral signs, associated with the history of continued exposure to high environmental temperatures, usually makes the diagnosis obvious.

For differential diagnosis from *Malaria* and other hyperpyrexia, the blood must be examined for parasites. Other conditions may be typhus fever, tetanus, meningitis and cerebral accidents.

Prognosis :

Untreated cases will die. Otherwise the course takes a favourable turn.

Treatment :

General. The aim of treatment should be to reduce temperature, as rapidly as possible. Probably immersion in ice-bath or in cold water is the most efficient method of cooling. *Remedies are given at the end of this section.*

HEAT EXHAUSTION

Heat exhaustion is of two kinds :

(1) Associated with water depletion heat exhaustion and dehydration.

(2) The salt depletion heat exhaustion (Type I).

There are also two other forms.

(i) In which there is partial or irregular loss of sweat. This is called "anhidrotic" heat exhaustion (Type II), and

(ii) Heat syncope (Exercise induced heat exhaustion). The last two have not been described in detail here.

WATER DEPLETION HEAT EXHAUSTION**Definition :**

This is a condition of heat exhaustion which results from water depletion due to prolonged sweating. The picture is characterised by pronounced thirst, fatigue, giddiness, oliguria and fever. In advanced cases, delirium may be followed by coma and death.

Etiology :

This syndrome generally results from being deprived of a fresh supply of water during working hours, especially in the tropics or when the loss of water through sweat is more than the intake of fresh water. When stranded in a desert or on high seas, the intake of water is denied.

Clinical Features :

(1) The earliest symptom is thirst with dry tongue and mouth, dysphagia and anorexia.

(2) Fatigue is progressive.

(3) The loss of weight is rapid.

(4) The patient becomes weak, restless and panicky.

(5) The voice becomes hoarse.

(6) Delirium may develop.

(7) The urinary output is low and may give place to oliguria and anuria. The body temperature rises, the pulse is rapid and breathing may be fast and cyanosis may appear.

Diagnosis :

The extreme thirst and the absence of adequate water supply are important diagnostic signs of water-depletion heat exhaustion. To prevent some confusion arising from salt-depletion cases, there is more loss of sweat than water in the latter case. Besides, in water depletion cases, there are no muscle cramps, and vomiting is uncommon, sweating is diminished, and concentrated urine contains appreciable amounts of chloride.

SALT DEPLETION HEAT EXHAUSTION

(Dehydration)

Definition :

This syndrome is a condition in which there is loss of salt with its inadequate replacement following prolonged sweating. It is characterised by fatigue, nausea, vomiting, giddiness, muscular cramps and varying degrees of dehydration and cardio-vascular disturbances including circulatory failure in severe cases.

Etiology :

(1) This condition is the result of carrying out hard work in hot conditions, with salt intake, inadequate to replace the losses of sodium and chloride during sweating.

(2) It is particularly seen in individuals unacclimatised to working in a hot environment.

(3) It may appear in either sex at any age.

(4) Predisposing factors include coexisting febrile illnesses, especially malaria, and gastro-intestinal disturbances involving diarrhoea and vomiting.

Clinical Picture :

(1) Severe cases are dehydrated and shocked and are of more clinical importance.

(2) Prodromal symptoms which last for several days are : a feeling of fatigue with headache, anorexia, mild nausea, fleeting muscle cramps, giddiness and sometimes unsteadiness of gait and sometimes spots in front of the eyes and tinnitus.

(3) The patient sweats freely and urine output is low.

(4) The onset in moderate and severe cases are usually accompanied by nausea and some vomiting, especially following the ingestion of large volumes of water.

(5) The vomiting is succeeded by muscular cramps

(6) The patient is exhausted and asthenic.

(7) There is always some recent loss of weight.

(8) In severer cases, the patient may be restless, anxious or lightly comatose. Otherwise the central nervous signs are not obvious.

(9) There is no temperature; in severer cases it is sub-normal.

(10) The skin is cold, pale, moist and inelastic ; when dehydration is severe, it is stretched over the body prominences, such as, malar bones and the face is pinched and the eyes look sunken.

(11) There may be profuse sweating.

(12) The pulse rate is fast in most cases ; the volume is small.

(13) In milder cases, systolic blood pressure is between 100 and 110 mm Hg.

(14) The breathing is fast and shallow, deep, stertorous or intermittent. Pulmonary oedema may occur in the late stages.

(15) Tetanic spasm is reported.

(16) Plasma and whole blood sodium and chloride concentrations are reduced in severe cases ; changes in potassium concentrations are not consistent.

Diagnosis :

The history of exposure to hot temperatures or hot working conditions, the appearance of the patient, vomiting, muscular cramps, oliguria and the absence of sodium chloride in the urine are diagnos-

tic. In severer cases other causes of shock must be excluded. Malaria (*Falciparum*) must always be excluded by examination of blood for parasites.

To distinguish salt depletion heat exhaustion from water-depletion heat exhaustion may occasionally be difficult in cases where the urinary chloride cannot be estimated.

HEAT CRAMPS

Definition :

Heat cramps are painful contractions of voluntary muscles that occur on account of salt depletion and heat exhaustion in individuals working in the heat, such as, miners, sugar-cane cutters, and firemen.

Etiology :

(1) These cramps occur after heavy sweating, and concurrent drinking of large quantities of unsalted fluids. In this way it can be said that it is due to extra-cellular salt dilution rather than to salt-depletion.

Symptoms and Signs :

(1) The contractures occur late in the day after some hours of hard work.

(2) These are very painful and commonly involve the legs and the arms.

(3) Occasionally these cramps are very severe and incapacitate the patient.

(4) The chloride concentration in urine passed during the cramps is considerably reduced.

Treatment :

- (a) Heat stroke,
- (b) Heat exhaustion, and
- (c) Heat cramps.

(a) Heat Stroke :

(1) **Aconite.** Patient dull, stupid, worse sitting up, with anxiety and fear of death.

(2) **Gelsemium**. Giddiness on trying to move ; band like pain ; pain in occiput.

(3) **Glonoine**. Give this every 5 mts. at first, then increase the interval gradually ; for after-effects, give it every 4 hours ; congestion to head and fever and vomiting.

(4) **Nat. Carb.** For late effects.

(5) **Opium 200**. For coma and fatigue. (Before trying *Opium* try *Belladonna*).

(b) **Heat Exhaustion :**

(1) **Gelsemium 6**. This is the chief remedy.

(2) **Nat. Carb.** Give this in repeated doses.

(3) **Camphor 1X**. For oliguria. Give this 2 hourly.

(c) **Heat Cramps :**

(1) **Arnica 3X**. For fatigue.

(2) **Nux Vom.** For no cause, cramps at night.

(3) **Cuprum**. A remedy that seldom fails.

(4) **Camphor 200**. Cramps with coldness in legs.

(5) **Other remedies are**. Calc. Carb.; Causticum; Cimex; Gelsemium ; Mag. Phos. ; Lycopodium ; Rhus Tox. ; Secale ; Sulphur.

(6) **Veratrum Alb.** If taken at night before going to bed, will overcome the tendency.

(7) **Colocynth**. For soreness, stiffness which frequently remains after an attack.

DISORDERS DUE TO CHEMICAL AGENTS

Acute Poisoning

Introduction :

Acute poisoning is the major disorder of certain chemical agents which should be considered. The incidence of poisoning by

these agents is steadily increasing both in the East and the West. A major factor in the rise of poisoning is the great increase of production in patent and dangerous allopathic drugs like tranquilizers and sedatives, which are within the reach of all and provide the means for overdosage and self-poisoning. Besides, there is the evil of incurable habit of drunkenness, the use of tobacco, opium and cocaine, which is prevalent among the youth. There are some metallic poisons, as also electric injuries and electrocutions which cause much damage and need our consideration.

SEDATIVES AND TRANQUILLIZERS

There are three such sedatives which are frequently taken by patients taking to allopathic treatment. These are :

- (1) Librium,
- (2) Valium, and
- (3) Mogadon.

Many patients take these drugs daily for a long time. They are only dangerous when combined with alcohol or more powerful sedatives or ingested in large amounts.

Symptoms and Signs :

Some depression of respiration may be noted with low blood pressure and slow pulse. Patients who are suffering from poisoning are not usually deeply unconscious.

Bromide Poisoning is still encountered in some cases, although to a much less extent than formerly, with diminished renal function, and acute psychosis with hallucinations or a milder degree of confusion with slurred speech and ataxia. This may be superimposed on chronic poisoning, characterised by constipation, anorexia, rashes, and the purplish colour of the facial skin.

Diagnosis :

The diagnosis of bromide poisoning may be made by the finding of more than 50 mg. of bromide per 100 ml. in blood.

Treatment :

It should correspond to symptoms. Begin with *Nux. Vom.* to be followed by *Sulphur* after a day or two.

POISONING DUE TO DEPRESSANTS OF THE CENTRAL NERVOUS SYSTEM

The greater number of chemical agents involved in acute poisoning are depressants of the central nervous system. The most important of these are *ethyl alcohol* and *barbiturates*.

ACUTE ALCOHOL POISONING OR DRUNKENNESS

Definition :

Drunkenness is a condition of instability or imbalance of the mind due to excessive drinking of ethyl alcohol content.

Etiology :

Excessive consumption of ethanol in beverages within a short period of time may produce a state of general anaesthesia, which has a poor therapeutic index and a prolonged effect. Any stage of this condition may be termed, "*drunkenness*". The patient, however, need not be taken ill for purposes of treatment, until he begins to overdose himself through innocence or mis-judgment, or until the dulling of mental acuity leads to artificial behaviour or to involvement in accidents.

Alcohol, which is absorbed in greater quantity, when the stomach is empty, is distributed throughout the body water, and obese persons are at a disadvantage. After about 2 hours of repeated drinking in spells, the equilibrium begins to be disturbed. Urine contains 25% more alcohol now than an equal volume of blood. More than 90% of absorbed alcohol is broken down in the liver to acetaldehyde and in the tissues to acetate. This step is catalyzed by an enzyme system which may become deficient in vitamins. This accumulation of aldehyde is toxic. The rate of disposal of alcohol remains very constant over a wide range of concentration, so that if a large dose has been absorbed, recovery is delayed. A small amount, proportional to the level of blood is excreted in the urine and breath.

Symptoms :

The depressant effects of alcohol are :

(1) A little dizziness, accompanied with euphoria, slight impairment of visual acuity, slurring of speech, and loss of refined, physical and mental capacities.

(2) Often there is a reddening of conjunctivae.

(3) Higher concentrations produce motor paralysis and loss of consciousness.

(4) Coma may supervene in susceptible persons. The pupils are dilated, breathing is stertorous, the pulse is bounding, but blood pressure is not often raised.

Diagnosis :

Injury frequently complicates drunkenness. An estimate of urinary or blood alcohol level may be helpful, but does not exclude other causes of stupor. Where there is a doubt, a lumbar puncture may be performed and skull examined by radiography. The urine should always be examined for sugar, albumin, barbiturate and salicylate.

Treatment :**Nux Vomica :**

(1) For throbbing headache, worse in open air and more in temples. (*Carbo Veg.* headache better in cool fresh air).

(2) If pain is attended by feeling, as if a nail were driven in the head, worse by walking in open air, stooping, and moving.

(3) If there is inclination to vomit and retching.

(4) If there is much pressing and forcing, with slimy purging.

(5) For indisposition from repeated use of wine, tedious headache and fulness and heaviness, constipation, much piles, pain in the back.

Carbo Veg. or Nux vom :

- (1) If there is only nausea or
- (2) If stools are thin and pale or
- (3) if unwell, heavy and stupid after drinking too much in the evening.

Coffea :

(1) If the headache does not abate after taking *Nux Vom* within 2 or 3 hours.

(2) If the effects of wine are only to excite or irritate and produce trembling with nervousness.

Antim Crud. If nausea continues, the stomach is very weak and the tongue is furred.

Calc. Carb. (1) Headache caused and aggravated by drinking wine, mental concentration, speaking, stooping, after reading or writing, the patient being very weak.

(2) If he is stout and plethoric (*Silcea*, if the patient is of spare habit).

Zincum. If the least quantity affects the head.

ACUTE COMPLICATIONS OF CHRONIC ALCOHOLISM**Definition :**

The chronic alcoholic has been defined as a person who is not able to control his consumption of alcohol, although he knows its disastrous results. This is drug dependence.

Pathology :

Primarily this is a mental disorder and is in the province of a psychiatrist. But there are a number of acute manifestations of

poisoning and toxicity, which may be properly considered here. Persons drink to excess in a regular rhythm, and when acutely intoxicated, have to go to a doctor for treatment. A few, on these occasions have an attack of amnesia which may be the initial symptom of dependence. Once established, the chronic indulgence may be associated with undernourishment (lack of vitamins) and be complicated with peripheral neuropathy, cerebral degeneration, or impairment of hepatic function. The immediate condition is often serious, because the amount consumed in a bout of drinking by such patients tends to be large, and because of the disabilities and diseases associated with chronic alcoholism.

Symptoms :

(1) An alcoholic often has high colour, with coarsened features and diluted venules (small veins) in the nose and the cheeks, and is cyanosed when cold.

(2) The conjunctivae are red and the eyes watery or glossy. There is often tremor of the hands and perhaps of the lips.

(3) He or she is restless in demeanour, may show compulsive movements of a violent type, is gerrulous but irascible with notably poor memory.

(4) The chest may be wheezy with morning catarrh, complicated by vomiting.

(5) Constipation interrupted by diarrhoea is often a feature of this condition.

(6) There may be enlargement of liver or impaired hepatic function or renal failure, or serious lung disease or delirium tremens or other psychoses.

Treatment :

General : (1) Psychiatric hospitalization is the most effective method of treatment, provided the patient accepts the fact that he has an illness and that he is prepared to abstain totally and permanently.

(2) *Neuritis* is generally due to Vitamin B deficiency and so a regular dose of this vitamin should be administered.

(3) Homoeopathic treatment will ultimately help the patient to combat the evil of drinking habit.

Curative :

Nux Vomica. This remedy should be given at night, when the patient is still under the influence of liquor, or any of the stages of alcoholism. The nervous affections, the headache, the frightful visions and starting at night, irritability and any gastric disturbance will all disappear with its administration. If *Nux* fails, *Agaricus* is the remedy. Both these remedies will arrest the tendency of *Delirium Tremens*.

Opium. For drunkenness and stupefied sleep with snoring ; give this remedy every 15 mts. until recovery.

Coffea is to be given for sleeplessness, convulsions, and too much liveliness (*Nux* ; if this fails).

Aconite. For fear and tossing about (*Bell*, if this fails).

Hyoscyamus. If there is no inflammation of the brain in the loquacious and tremulous condition of an alcoholic, and there is insomnia combined with marked sexual excitement with a tendency to escape and indulge in outbursts of laughter, alternated with weeping, this remedy will be effective in tincture doses 5 to 10 drops in half a tumbler of water, one teaspoonful every half an hour.

Sulphuric Acid. A remedy for chronic alcoholism, when an alcoholic is on his last leg—pale, shrivelled and cold—and the stomach does not tolerate the least food and even water. Such patients are hasty and show hurry in everything and have a constant craving for brandy. It acts best when the breath is sour and vomiting is present.

Cannabis Sativa. When there is some violence and the mind is active and talkative, with subjects crowding in mind with a sense of exaggeration, delusion, hallucination, actual perspiration and flushing of the face, this remedy will prove useful.

Capsicum is a very good remedy in ten drop doses of tincture for morning vomiting, sickness of stomach, intense craving for alcohol and agitation with frightful visions and delirium. (If nausea continues, and the tongue is furred, give *Antim. Crud.*)

Cantharis is the remedy, when the patient bites, or is attempting to bite with urinary complaints, and sexual excitement.

Spiritus Glandium Quercus is expected to cause disgust for alcoholic drinks. (Sulphur 6 in water every morning for a week will also help. If the craving returns, take *Nux Vom.* in the evening for several days to be followed by *Sulphur* again in the morning.

Avena Sativa. Where the alcoholics are nervous and sleepless ; *Cimicifuga* is indicated when there is persistent sleeplessness with mental depression and mild delirium.

Aconite, Belladonna, Calcarea Carb., Stramonium, Lachesis and Opium have their share in acute alcoholism and tendency to delirium. Each of these have a specific marked indication on which one could prescribe to the advantage of the patient.

TOBACCO HABIT (Nicotinism)

Introduction :

Tobacco is indulged in three forms :

- (i) smoking,
- (ii) chewing, and
- (iii) as snuff.

It derives its botanical name from the island at Tobago and from the name of the French diplomat NICOT who introduced it in Europe about the end of the 16th century. Tobacco is obtained from the dried leaves of *Nicotiana glauca*.

Etiology :

Abuse of tobacco result from too much smoking, chewing or snuffing on account of the presence of nicotine collidine, methyl alcohol, and various volatile oils. The presence of hydrocyanic acid and carbon monoxide in smoke in insignificant quantities contributes to the ill-effects of tobacco smoking.

Symptoms and Signs :

- (1) Acute nicotine poisoning occurs from heavy smoking.
- (2) Smoking in moderation gives rise to a feeling of ease and relaxation, but in majority of cases, there is lessening of efficiency.
- (3) Rise in blood-pressure is generally observed.
- (4) Irritation of tobacco dust may cause asthma among workers.
- (5) Heavy smokers develop laryngitis and pharyngitis ; bronchitis is common among smokers.
- (6) A few patients develop lung cancer.
- (7) Heat of the pipe may give carcinoma of the lips.
- (8) Some smokers lose sense of taste ; some have loss of appetite, gastric ulceration and these make the treatment less effective.
- (9) Heavy smokers and tobacco chewers may develop defective vision and optic atrophy.
- (10) Bradycardia and peripheral circulatory failure are marked features of the illness from nicotine.

Treatment :

- (1) **Daphne-Indica or Caladium Seg.** : For tobacco-craving.
- (2) **Pulsatilla**. If smoking causes sickness of stomach (*Ignatia*, if this fails).

(3) **Aconite**. For severe headache and nausea.

(4) **Chamomilla**. For giddiness, fainting, vomiting of bile and diarrhoea (if there is coldness, also, give *Veratrum*).

(5) **Cuprum or Coccus**. For violent convulsions and other symptoms.

(6) **Bryonia**. If it causes toothache.

(7) **Staphysagria**. If there is uneasiness and nausea.

(The above remedies will also do for the same effects from chewing tobacco). If not sufficient, give *Nux Vom.* or *Arsenicum*.

LEAD POISONING

Introduction :

Chronic lead poisoning is called Plumbism or Saturnism.

Etiology :

(1) Lead poisoning is chiefly of occupational origin. Poisoning is due to the absorption of lead or its compounds during the course of work. Workers are exposed to this danger in the smelting and tinning of metals, enamelling, pottery glazing, ship-building, coach painting, soldering, house-painting and in the manufacture of white lead, red lead, rubber, glass, cement, varnish, etc.

(2) Lead poisoning may also be accidental from drinking water which may have dissolved lead from lead pipes, or cisterns, or beer, drawn from casks, and through lead pipes. Tinned foods may also cause lead poisoning ; hair dyes, toilet powders, or face creams may also contain lead. Ointments containing lead may cause poisoning or lead lotions may sometimes be responsible for it.

Symptoms and Signs :

(1) If a large dose has been taken with suicidal intention, the patient will suffer from burning in the mouth, thirst, dysphagia, intestinal colic, vomiting, cramps in legs and convulsions.

(2) In accidental cases, the early symptoms are :

- (i) sleeplessness, troubled dreams, nasty sweet taste, bad breath, loss of appetite, diarrhoea with or without colic, trembling, giddiness and loss of weight,
- (ii) severe intestinal colic (lead colic) followed by marked constipation,
- (iii) cramps in legs,
- (iv) acute nervous symptoms viz. mania or convulsions, coma or delirium, optic atrophy, temporary blindness,
- (v) uraemic symptoms,
- (vi) paleness and anaemia with greyish skin and a blue line on the gums,
- (vii) tremors of the tongue and hands. In chronic lead poisoning, we may also get paralysis of motor nerves resulting into wrist-drop or foot-drop. Sensory system is never affected.

Treatment :

General : Use epsom salt (one tablespoonful of salt dissolved in warm water), white of eggs, or milk.

(1) For pains, give *Opium*, *Belladonna*, *Nux Vom.*, or *Glonoine*.

(2) For Chronic complaints, give *Platinum* besides *Opium* and *Belladonna*. Small doses of *Alumina* are also useful.

MORPHINISM

(Opium habit)

Introduction :

Morphinism is chronic opium poisoning and is an organic disorder through habitual opium-eating. Weak, unstable and unhappy people usually become addicts.

Etiology :

Poisoning comes by accident in children or self-administration in adults and from therapeutic misadventure in either. Over-dosage may occur on the part of the addict and increase the effect of the drug.

Symptoms and Signs :

These consist of :

- (i) yawning, sneezing, overflow of tears and saliva,
- (ii) fulness in the head, restless movements, malaise, twitching in the face, tremors, palpitation, indigestion, vomiting, diarrhoea, strangury, sleeplessness and circulatory upset, which may go on to collapse,
- (iii) laziness and lying are frequent, and the patient may commit crimes to get his drug,
- (iv) dementia does not occur, but occasionally delirium may be observed,
- (v) dryness of the skin, hair, nails, constipation, loss of appetite, partial impotence and poor resistance to infection are positive effects, and
- (vi) hypotension is a feature of mild overdosage.

Prognosis :

This is poor so far as the addiction is concerned, if the patient has an easy access to the drug. If the patient exercises will power and offers co-operation, the outlook is better.

Treatment :

Apomorphia. If vomiting is preceded by nausea, with lassitude and increased secretion of sweat, saliva, mucous, and tears; vertigo; dilated pupils.

Avena Sativa :

Nervous exhaustion, sexual debility, morphine habit and its bad effects.

Macrotoin. Morphinism especially when lumbago is present.

Belladonna. For the patient who remains stupefied or asleep after a large dose, give this every ten, twenty or thirty minutes in water (Try *Muriatic acid*, if this does not relieve).

Ipecacuanha. Give this after some days two or three times.

Chamomilla. For pains that remain and after some days, give *Mercurius*.

COCAINISM

Cocainism (by mouth or in the form of snuff) is fairly common in India. The causes and symptoms are similar to those of other addictions like alcohol and morphine. Delirium, hallucinations, demoralisation can occur. Cutaneous hallucination *e.g.* of bugs under the skin are prominent. A paranoid schizophrenia state sometimes comes on, but is cleared up after the drug has been stopped. Anorexia is perhaps the most marked symptom. The skin is pale and the pupils dilated. In small doses, cocaine enhances mental activity and causes excitement.

As regards treatment, what has been said of morphinism may also apply here.

FOOD POISONING

(Acute Gastro-enteritis)

Definition :

The term food poisoning is used to describe a number of illnesses of the small intestine in which gastro-intestinal symptoms arise within 24 hours or so of eating food, contaminated by bacteria, bacterial toxins or irritant chemicals. The most common disease of the small intestine is *acute gastro-enteritis*, due to food poisoning. It is customary, not to include in this term :

- (a) Such specific infectious diseases as enteric fever, bacillary dysentery, paratyphoid fever or cholera which are also spread by infected food or water.

- (b) Food allergy, since the food ingested is wholesome, and
- (c) Digestive upsets resulting from food which is too rich (e.g. fats) or mechanically irritating (e.g. unripe fruits). Children are particularly prone to such upsets.

Food poisoning was originally thought to be due to toxic products of protein breakdown formed in the course of bacterial decomposition. Under ordinary circumstances these substances, known as *ptomaines*, play no part in human illness, as they appear, when food is in such an advanced stage of decomposition that it is too repulsive to be eaten.

Etiology :

The causes of food poisoning are :

(1) **Infection.** The organisms responsible belong to the *salmonella* group which has its natural reservoir in certain birds, mammals and reptiles. *Salmonella typhimurium* (Paratyphoid B) has been found causing at best three-quarters of cases of this type of poisoning. Food may be contaminated with infected excreta of mice or rats etc., or infection may be transferred by flies or human carriers employed in the handling of food.

(2) **Toxin.** Certain strains of *staphylococci* (*Staphylococcus aureus*) produce an enterotoxin, which, in a great majority of cases is transferred by a food handler who has a septic skin lesion or who is a heavy nasal or throat excretor of staphylococci. Processed meats (e.g., meat pies) are the commonest sources, but canned meat, milk, cheese and sweatmeat may become infected. The enterotoxin is very resistant to heat and is not destroyed by cooking or even by boiling.

The 'toxin' type of food poisoning is much less commonly due to *streptococci*, and very rarely to the anaerobic organism *clostridium botulinum*, which causes a very serious and usually a fatal disease of the central nervous system with minimal gastro-intestinal disturbance.

(3) **Chemical food poisoning.** Poisoning may also be due to injurious chemical substances in the food by accidental contamination. The poison may contaminate food which has been placed

in a container previously used for a chemical poison, or the food may be contaminated as a result of placing acid liquids (e.g. lemonade or stewed fruits in cheap enamel or zinc vessels with consequent liberation of antimony or zinc.

(4) **Poisonous foods.** Poisonous foods include fungi, especially 'death cap' fungus, which may be mistaken for the harmless edible "mushroom" and certain tropical fishes.

Clinical features :

(1) The incubation period of the different types is a useful pointer to their etiology, e.g., if vomiting starts within half an hour of the ingestion of a poisonous food, it is likely to be due to an irritant or a chemical poison. If it occurs within 6 hours, it is probably due to a bacterial toxin ; whereas, if it arises 12 to 48 hours later, it is probably due to a *Salmonella* infection.

(2) The principal symptoms are nausea, diarrhoea, vomiting and abdominal pain, the latter being due to colic of the small intestine.

(3) In severe cases there may be prostration, collapse, and signs of dehydration.

(4) In the 'chemical' and 'toxin' types of food poisoning, the onset tends to be sudden and severe and the patient rapidly passes into a state of collapse and frequently has a sub-normal temperature. Recovery usually occurs within 24 hours.

(5) In the 'infective' type, symptoms develop more slowly and there may be rise of temperature. The patient may be ill for several days. The stools are watery and offensive, and there may be a little blood and some mucous in contrast to bacillary dysentery, where there is in addition too much pus.

Diagnosis :

(1) In food poisoning it is common to find other members of the household or institution affected simultaneously, and when this feature is present, the diagnosis becomes easier.

(2) A specimen of the patient's vomit and faeces, collected during the acute stage of the disease, should be sent immediately to the nearest laboratory. Suspected articles of food should also be sent.

(3) Suspected cases should be immediately reported to the Medical Officer of health.

Treatment :

General : Hospitalisation is absolutely necessary.

Curable :

(a) **Decayed food or meat.** Try the following remedies on the indications :

(1) Ars. Alb. followed by Phosphorus.

(2) Cuprum Ars.

(3) Ver. Alb. or Phos. Acid.

(4) Camphor.

(b) **Mushroom poisoning.** *Absentium* is a good remedy.

(c) **Gastro-enteritis.** (Infectious or toxic poisoning) Try the following remedies according to indications :

(1) Arg. Nit.

(2) Ars. Alb.

(3) Baptisia.

(4) Cuprum.

(5) Rhus Tox.

(6) When the upsets, particularly of children are due to mechanical irritation (e.g. fruits) give *Bryonia*, *China* or *Pulsatilla*.

ELECTRICAL INJURIES AND ELECTROCUTION

Etiology :

The etiological factors are : accidents or electrocutions from :

(1) Domestic electric supply.

- (2) Industrial lighting supplies,
- (3) Electric motors.
- (4) Overhead conductor wires of suburban electric trains.
- (5) Overhead connections of the electricity boards in various cities, towns and villages.
- (6) Lightning conductors.
- (7) Fans and other sources,
- (8) Lightning stroke, and
- (9) Telegraph post.

Pathology :

In the circumstances of nearly all electrical accidents, the degree of contact of the body with the electrical conductor affects the total resistance considerably. The degree of contact depends upon the surface area of the body in contact with the live conductor at the point of entry, the degree of insulation of the body from the negative conductor, which, very often may be the earth, the moisture of the skin and the pressure of the body against the conductor (*e.g.*, clasping by the hand).

The internal resistance of the body to the passage of electricity is about 500 ohms, but the skin resistance varies by several orders of magnitude, so that the total body resistance varies considerably.

The passage of electricity through the body causes heating and skin burns, and internal injury may result. The degree of heating is determined by the product of the voltage and current. The arcing-over from a high potential conductor to the body reduces the voltage passing through the body and may account for some recoveries by shock from tensions. Apart from heating, the effects of the passage of electricity through the body occur instantaneously as the electricity enters the body.

Shocks from direct current are rarely fatal, unless death results from burns. In deaths from lightning stroke, gross tissue disruption may be found, and the common site for this is the scalp and the brain. The victim's clothes may have been torn off. These effects are due to the intense electro-static changes generated, and these, according to normal laws, repel each other.

Symptoms :

A patient recovering from a shock may be severely collapsed. Severe pain may be experienced from skin burns or from muscular or ligamentous injuries or dislocation of joints (due to severe muscular contractions). Less severe shocks may be followed by faintness. Anxiety states are common sequelae, and coronary occlusions may occur as a late complication. Amnesia is common. Neurological sequelae including Parkinsonism have been reported, but they are rare.

Treatment :

Sugar of milk in which electricity has been passed, should be given to the patient. (Electricites).

CHAPTER—II

CIRCULATORY SYSTEM

(DISEASES OF HEART AND BLOOD VESSELS)

CIRCULATORY SYSTEM

I—GENERAL CONSIDERATIONS

(1) The *function of the heart* and blood vessels is to supply to all tissues of the body with adequate oxygenated blood.

(2) The *cardiac output* is the effective volume of blood expelled by the heart in a minute, and it varies between 4 and 6.5 litres per minute at rest with an average of 5.3 litres. The output with each beat averages between 70 and 80 ml, when the heart rate is 72 per minute. An increase in heart rate or an increase in stroke volume causes an increase in cardiac output.

(3) Blood is ejected into great vessels against peripheral resistance, thus creating *arterial pressure*, and each separate ventricular systole causes a *pulse pressure wave*. The resistance offered in the systemic circulation is much higher than that in the pulmonary circulation. Thus the arterial pressures differ in each circulation by a corresponding degree, although the output of the two ventricles is equal. The difference in the thickness of right and left ventricles reflects the difference in resistance against which each works.

(4) The cardiac output varies greatly under physiological conditions :—changes in venous return are largely responsible for significant changes in cardiac output which are brought about by alterations in stroke volume and heart rate. Cardiac output decreases with a change to the upright position because of a fall in venous return. It increases with emotion and may increase five-fold or more on exercise in a trained athlete.

(5) The arterial pressure remains relatively constant, because these physiological variations in cardiac output are balanced by reciprocal changes in the tone of the peripheral vascular system.

The cardio-vascular system functions as a whole. Changes in one variable factor are offset by alterations in others and there is integration of the whole through the autonomic nervous system.

(6) The function of the ventricles is to eject blood into the high pressure arterial system. *In systole*, the atrio-ventricular valves are closed and each ventricular chamber and its outflow tract to the aorta or pulmonary artery behaves as a smooth continuum. After the peak pressure is reached, relaxation follows and the semi-lunar (shaped like a moon) valves close, preventing the regurgitation of blood, and thereby creating a *diastolic arterial pressure*.

(7) The clinical manifestations of *ventricular systole* are the *arterial pulse wave*, the "C" wave in the jugular venous pulse, the lift of the *apex beat*, the first heart sound and the QRS complex on the *electro-cardiogram*.

(8) The second sound which occurs at the end of systole is normally split into two sounds from asynchronous closure of the semilunar valves.

(9) When the intraventricular pressure has fallen low enough for the atrio-ventricular valves to open, ventricular filling starts, and it is completed by atrial systole.

(10) The normal basal systemic arterial pressure is between 100 and 145 mm. HG in systole and between 60 and 90 mm. in diastole.

(11) The elasticity of the normal aorta damps the initial systolic thrust, so that as aorta loses elasticity with the advancing age, systolic pressure tends to rise.

(12) *The normal pulmonary artery pressure* is between 15 and 25 mm. HG. in systole and between 6 and 10 mm. HG in diastole.

(13) The causes of heart diseases in middle and old age are coronary atherosclerosis and hypertension. *Rheumatic fever* is by far the most common cause in childhood, adolescence and early adult life and congenital heart disease is the commonest cause in infancy.

(14) The incidence of ischemic heart disease appears to be increasing and that of rheumatic heart disease falling.

II—INVESTIGATION OR DIAGNOSIS OF HEART DISEASE

The investigation or a diagnosis in heart disease can usually be made from :

- A, its clinical manifestations,
- B, a detailed physical examination of heart,
- C, radiology and electrocardiography,
- D, occasionally by the use of highly specialised techniques, such as, catheterisation and angiocardiography, and
- E, cardiac efficiency tests.

(A) CLINICAL MANIFESTATIONS

In clinical diagnosis and investigation, it is impossible to exaggerate the importance of the *history of the heart patient*. Time taken over this part of examination is never wasted.

Symptoms in the heart diseases :

(i) **Dyspnoea on effort** is the first and the most sensitive indication of the cardiac failure. It implies difficulty in breathing, combined with a feeling of suffocation. It is usually aggravated in the latter part of the day, but it improves after rest, at night and in the morning. In a severe type, even the slight relief is denied to the patient.

Causes :

It is due to diminished vital capacity, increased stiffness of the lungs from congestion of the pulmonary vascular system and reflexes arising therein which lessen the depth of respiration and increase its rate. It may be due to a primary disease of the lungs, or obesity, but carefully-taken history will often reveal a subtle but significant change when *cardiac dyspnoea* is superimposed on dyspnoea due to these other factors. Respiratory symptoms associated with psychoneurosis, such as, tachypnoea and sighing, are readily distinguished from those due to organic disease.

Treatment :

- (1) **Aconite** (anxious).
- (2) **Amm. c.** (worse from ascending).
- (3) **Nat. Sulph.** (worse from cloudy weather).
- (4) **Ars.** (worse from lying down).
- (5) **Calc-Carb.** (better from bending backwards).
- (6) **Sambucus** (better by sitting up).
- (7) **Moschus** (worse from nervous causes).
- (8) **Lachesis** (worse from sleep).
- (9) **Psor.** (better from lying down).
- (10) **Ant. T.** (better from expectoration).
- (11) **Sulphur** (Relief in open air).

(ii) **Chest pain (in praecordium).** Chest pain is mostly due to cardiac ischaemia (deficient supply of blood from the heart and its vessels), pericarditis or psychoneurosis. The type of pain, its site and radiation, provoking and relieving factors and natural history must be known before a diagnosis and full assessment can be made.

Treatment :

- (1) **Aconite** : pain from taking cold.
- (2) **Arnica** : pain from over-exertion.
- (3) **Bryonia** : sharp stitching pain on breathing or slightest motion.
- (4) **Ran. Bul.** : left side especially affected.
- (5) **Chel.** : stitches beneath the right ribs.
- (6) **Puls.** : pain under left breast.
- (7) **Oxalic acid** : sharp pain through lower part of left side of the chest.
- (8) **Cimicifuga** : Rheumatic pains in chest.

(iii) **Palpitation** implies consciousness or awareness of the heart's beating due to an increase in rate, or force or an arrhythmia on account of over-anxiety resulting from overactivity of the sympathetic nervous system. It is a frequent symptom of neurotic ill-health, but is common in heart diseases, thyrotoxicosis and sometimes

during hypertension. Fatigue and weakness are often symptoms of neurosis, but may also be due to a low cardiac output from chronic valvular disease. Sometimes extrasystoles may be responsible for an unpleasant sensation in the chest (referred to as "missed beat" or thud).

Treatment :

- (1) **Aconite**. Palpitation in a vigorous heart.
- (2) **Nux Vom**. From indigestion or flatulence.
- (3) **Pulsatilla**. From indigestion in females or acidity with loose bowels.
- (4) **Carbo Veg**. With excessive flatulence in stomach after food.
- (5) **Thyrodinum**. Palpitation after fainting.
- (6) **Iberis**. Palpitation and irregular action.
- (7) **Moschus**. From nervous causes.
- (8) **Crataegus**. Palpitation with heart failure.
- (9) **Digitalis**. Palpitation with slow, intermittent pulse.
- (10) **Ignatia**. Nervous palpitation keeping the patient awake at night.
- (11) **Cact G**. Palpitation with tightness of chest.
- (12) **Spigelia**. Palpitation with cutting and shooting pain in heart.
- (13) **Nat. Mur**. Palpitation, when lying down in bed at night after food.

(iv) **Syncope** is loss of consciousness due to acute systemic arterial hypotension. Simple fainting is vasovagal fainting, and, which, like other symptoms of cardiac disease, may be associated with psychoneurosis. An adequate history usually distinguishes syncope from *unconsciousness* due to primary cerebral causes.

Treatment :

- (1) **Moschus**. Fainting in nervous subjects.
- (2) **Ignatia**. Hysterical fainting.
- (3) **Arsenic**. Fainting in debilitated subjects.

- (4) **Cantharis.** Sudden loss of consciousness.
- (5) **China.** Fainting due to haemorrhage.
- (6) **Nat. Mur.** Great debility and weakness with fainting.
- (7) **Opium.** Stupor and fainting from fright, arterial rupture and insufficient blood.
- (8) **Spigelia.** Fainting due to anaemia, debilitated and scrofulous subjects.
- (9) **Trillium.** Fainting from nose-bleeding.
- (10) **Belladonna.** Syncope from hypotension.

(B) DETAILED PHYSICAL EXAMINATION OF THE HEART

This will include :

- (1) a general inspection of the patient and his appearance and signs,
- (2) the examination of cardio-vascular system and any other symptoms indicated, and
- (3) Physical examination of heart.

(1) General appearance and signs :

Appearance and demeanour may reveal anxiety and depression; other signs, such as cyanosis, paroxysmal dyspnoea, obesity, pallor, jaundice, goitre, loss of weight, may be observed whilst obtaining the history. Structural abnormalities of hands may be associated with congenital heart disease. Inspection of nails may show clubbing of fingers. Skin rashes are often important.

CYANOSIS

Definition :

Cyanosis is defined as the bluish or purplish discolouration of the skin and the mucous membrane due to reduced content of haemoglobin, being more than 4.5 gm. per 100 ml. of blood in circulation. Blood is generally over 95% saturated with oxygen, in health. If this falls to 80 or 85% of saturation, cyanosis appears. This condition is better observed in lips, ears, tip of the nose, and finger also and nails in the mucous membranes of the tongue and the mouth.

Etiology :

The causes leading to cyanosis may be divided into two parts.

(a) **Central Cyanosis.** This results from the cyanotic types of congenital heart disease and lung complaints, which reduce the capacity of the blood to absorb oxygen and impair its circulation. Bluishness is noticed in inward surface like the mouth, tongue, etc.

(b) **Peripheral Cyanosis.** The cyanosis of the extremities is due to excessive abstraction of oxygen from blood, caused by the arterial constriction and stagnation on account of slow circulation and low cardiac output. The tip of the nose, the lobes of the ears, and the hands and feet are cold and blue, although the arterial blood has normal oxygen saturation.

Other conditions leading to cyanosis may be :

- (i) inhalation of air containing too little oxygen,
- (ii) imperfect respiration due to spasms, oedema or inflammation of larynx, glottis or other obstructions,
- (iii) nerve causes, such as, bulbar paralysis,
- (iv) drug causes, being due to sulpha drugs,
- (v) blood causes, such as, in polycythaemia, and
- (vi) local causes, such as, venous thrombosis or any obstruction.

Important Features :

Bluishness of the surface of the body, especially of lips and face ; coldness of extremities and depression of muscular and nervous system.

Prognosis :

As cyanosis is not a disease by itself, but a mere consequence of some derangement, its prognostic value depends upon the disease which causes it. Marked cyanosis in cardiac disease is an unfavourable symptom. Still it is claimed that large number of cases, if treated judiciously, are favourable.

Treatment :

When cyanosis is due to some heart or other diseases, the patient must be treated for that particular disease. But if it is a

congenital case, *Rhus Tox* and *Hydrocyanic Acid* would be most suitable. Other remedies are : *Lachesis*, *Camphor*, *Cuprum*, *Digitalis*, *Opium*, *Sambucus*, *Ver. Alb.*, *Carbo Veg.*, *Pulsatilla* and *Antim. Ars.*

DYSPNOEA (PAROXYSMAL)

Definition :

Paroxysmal attacks of breathlessness, necessitating an upright sitting position for its relief, usually arise later in the natural course of the disease, and may be of any degree of severity.

Etiology :

Most attacks occur at night, and it is probable that change in posture to a more horizontal level is the immediate cause. A strenuous day's work, large meals and greater salt intake during the preceding day may be factors, which precipitate an attack during the night.

Features :

Patients characteristically seek an open window. There may be a sense of constriction in the chest, cough and expectoration of blood-tinged watery mucus. Breathing may be extremely difficult, wheezy, and accompanied by great distress. Anxiety is a special feature of nocturnal attacks. Pulmonary oedema constitutes a more severe and acute stage of left ventricular failure. Cyanosis develops. Mental confusion may supervene and sometimes there is amnesia after the attack. Haemoptysis occurs commonly with the severe forms of congestion. Examination of lungs may show presence of adventitious sounds and extensive crepitations. Cheyne-stokes respiration frequently occurs in the late stages of left ventricular failure.

Treatment :

(1) **Aconite Ferox** is said to be valuable in cardiac dyspnoea, neuralgia and acute gout ; must sit up in bed ; rapid respiratory muscles.

(2) **Apis Mel.** Heart affections, when the patient does not see how he can get another breath.

(3) **China Ars.** Cardiac dyspnoea ; palpitation ; short of breath on ascending ; general weariness and prostration ; coldness of hands and feet, knees and limbs ; wants more air.

(4) **Glonoine.** Laboured breathing ; pains radiating in all directions even into arms ; must have head high and pulsating headache ; fullness of heart with some sharp pains.

(5) **Convallaria.** Heart diseases with scanty urine, dropsy and great dyspnoea. Dyspnoea, palpitation, and oedema due to mitral disease have been relieved by it ; also useful in uneasiness about the heart in conditions, known as cigarette or tobacco heart.

(6) **Iberis.** Cardiac dyspnoea, the patient wakes with palpitation about 2 a.m. (Tachycardia) ; violent palpitation on the slightest exertion with vertigo and choking in throat. Pulse full, irregular, intermittent, darting pains through the heart.

(7) **Magnolia.** Dyspnoea, with crampy pain in heart, tendency to faint ; sensation, as if heart would stop beating ; feet itch.

(8) **Spongia.** Violent palpitation with dyspnoea ; cannot lie down and yet feels best in horizontal position ; awakens suddenly at night after 12 with pain and suffocation ; face is flushed, hot, and anxious ; dilatation of heart with asthmatic symptoms ; perspiration after slight exertion ; lack of vitality.

(9) **Strophanthus** is said to relieve dyspnoea and cardiac distress and dropsy ; has been found useful in weak, enlarged, irritable heart with tense arteries, and a free discharge of urine ; useful for the old people in heart failure, as it reduces the pulse and increases the power of the heart. It probably suits better, heart troubles dependent on kidney disease, or where coffee, tea, tobacco, alcohol have already poisoned the heart.

(10) **Kali Hydriodicum** has a smothering sensation about heart, waking the patient from sleep at night and sit up in bed.

OTHER SIGNS

Pallor :

This is due to a diminished supply of blood to the superficial capillaries and anaemia of the skin. It is more evident on the skin of the face and the surface of the membranes.

Jaundice :

Jaundice is sometimes present on account of the chronic venous congestion and stasis in the liver.

Obesity :

It may aggravate or entirely account for dyspnoea on exertion and decrease exercise tolerance in patients of angina pectoris.

Loss of weight :

This is a common sequel to chronic congestive cardiac failure. Wasting is also a feature of thyrotoxicosis (goitre), which is the cause of atrial fibrillation or cardiac failure in the elderly.

Clubbing of fingers.

Hot palms suggest anxiety and thyrotoxicosis. In anxiety, the hands are usually cold ; while in thyrotoxicosis they are warm. Clubbing of fingers is seen in cyanotic congenital heart disease and in advanced bacterial endocarditis, but is more found in other conditions. Painful nodules and clubbing of fingers may also occur in rheumatic endocarditis.

(2) Examination of Cardio-Vascular System

ARTERIAL AND VENOUS PULSES

Pure oxygenated blood pulsating in the arteries is called arterial blood, while the impure non-oxygenated blood flowing in the veins is called venous blood.

Arterial pulse :

The examination of this pulse is traditional. The pulse at the wrist, called the *radial pulse*, is usually examined. The arterial pulse at the neck, called *carotid pulse* may also be examined on both sides of the neck. When examining a patient, he is made to lie down comfortably in bed without any excitement with the whole arm on

one side first at body level, and, then, raised without bending at the elbow. The artery is, then, touched with the three fingers of the right hand. The finger, distant from the hand, stops the circulation of blood by pressure, and the finger nearest to the hand exerts varying grades of pressure on the artery, while the middle one feels the pulse. It is in this position that various features of the pulse are recorded, such as, rate, rhythm, character, volume and condition of vessel wall.

Rate :

The heart rate is always noted, by a watch, as so many beats per minute. The normal beats per minute are stated to be following at different levels :

- (1) 130 to 140 per minute at birth and up to one year,
- (2) 100 beats per minute up to 3 years,
- (3) 90 beats up to 14 years,
- (4) 80 beats up to 18 years,
- (5) 70 beats from 18 to 60 years, and
- (6) 80 beats above 60 years.

For females 10 beats should be added to the above list, the normal varying from 60 to 90 beats. The words tachycardia and bradycardia are used to indicate abnormally fast and slow rates respectively. The pulse rate, which is more than 90 beats per minute is called *tachycardia*, and that below 60 beats per minute *bradycardia*. These have no particular significance, unless they are paroxysmal. (See Ischaemic diseases).

The causes of tachycardia are : emotion, thyrotoxicosis, fever, paroxysmal atrial tachycardia, atrial flutter, and atrial fibrillation.

The common cause of bradycardia is myxoedema *excessive use of digitalis* and heart block (see under 'arrhythmias').

Rhythm :

Normally the pulse is regular both in time and in force. But when some heart beats are of greater duration and

more forcible, the pulse will have an irregular rhythm (cardiac arrhythmia). This diagnosis of the rhythm is generally made out by auscultation, but with practice it can be made correctly on the pulse alone. The cause of these irregular beats is detailed in the section on 'arrhythmias.

Volume :

Pulse pressure or pulse volume is the degree of expansion (amplitude) of the artery during the passage of each pulse wave and represents the difference between the systolic and diastolic pressures and should always be determined on palpation of the radial artery with the patient's arm in a horizontal direction and thus assess the amplitude of the pulse wave. The pulse volume provides a useful clinical estimate of the left ventricular output per beat (stroke volume). It is modified by vasomotor tone and local conditions, such as, sclerosis or anatomically small artery.

A pulse of small volume is characteristic of shock and of low output, heart failure, and may occur with severe valvular stenosis or severe pulmonary hypertension. A pulse of large volume is found in fevers, aortic incompetence, atherosclerosis of the aorta, extreme bradycardia, as in heart block in diseases in which there is increased cardiac output, *e.g.* severe anaemia, thyrotoxicosis, extreme bradycardia and in diseases in which there is increased cardiac output. If the brachial pulses are unequal, it can be inferred that there is a vascular block, of which the most common causes are embolism, thrombosis and obstruction of the origin by atherosclerosis of the aorta.

Tension :

The tension (systolic pressure) is roughly determined by feeling the radial artery with three fingers, one compressing the vessel from above, the middle one feeling the pulse, and the lowermost finger obliterating the under collateral vessels below. The degree of pressure necessary to obliterate the pulse, as felt by the middle finger, gives the estimation of systolic pressure. The more satisfactory technique is to feel and gradually compress with the thumb of the hand the brachial artery in the region of the inner and lower aspect of the upper arm, while the radial artery is felt with the fingers of the other hand. With practice the systolic pressure can

be assessed in the great majority of cases within a margin of 10 millimetres.

BLOOD PRESSURE

Blood pressure is the lateral pressure exerted on the walls of the blood-vessels. The systolic pressure is the maximum pressure in an artery during systole, *i.e.* during the contraction of the ventricles. The diastolic pressure is the minimum pressure in an artery during diastole, *i.e.* when the ventricles are filling. The pulse pressure is the difference between the two. These two blood pressures in man are accurately measured with an instrument, called "Sphygmomanometer" by two methods :

(a) *The Palpatory Method.* *i.e.* by feeling the pulse, and

(b) *The Auscultatory Method,* *i.e.* by hearing the sounds.

(a) **Palpatory Method.** After the arm-band has been wrapped round the arm, the cuff is inflated steadily, until the brachial pulse is no longer felt, and is then deflated slowly. The point at which the brachial pulse reappears represents *systolic pressure*.

(b) **Auscultatory Method.** The stethoscope should be applied lightly and accurately over the brachial artery, just below, but not in contact with the cuff. The cuff is, then, inflated to a pressure of some 30 mm. Hg above the systolic pressure, as found by palpation, and afterwards slowly deflated. The systolic pressure is the reading at which faint tapping (click) sounds are first heard. As the pressure is further lowered in the cuff, the dull thud of the upper limits is replaced first by a murmur, and, then by louder and sharper sounds. The point at which these slapping sounds suddenly become muffled or dull is usually taken as the *diastolic pressure*. In adults the average normal systolic pressure is usually stated to be between 130 and 145 mm. In older people it is between 140 and 150 mm. It must, however, fluctuate with physiological conditions like exertion, fatigue, nervousness, excitement, cold and smoking. The diastolic pressure is normally 35 to 50 mm. lower than the systolic pressure. When we say that the blood pressure is high, we mean to say that both the systolic and diastolic pressures are higher than the normal for a particular age.

Pulse Wave and its Character :

The blood which is suddenly thrown into the big artery (aortal) during systole is accommodated partly by moving the entire arterial column on at a greater velocity and partly by stretching and enlarging the arterial wall. This increase of pressure and the arterial distension transmitted from the segment of an artery to the next in the form of a wave is called a "*Pulse wave*".

There are several types of pulse waves as given below :

Anacrotic pulse :

In aortic stenosis, a notch may sometimes be felt on the upstroke of the pulse and the wave may be prolonged or of a small amplitude.

Dicrotic pulse :

Accumulation of dicrotic wave, sometimes so marked as to give the impression of a double pulse at the wrist, may be found in any condition with vaso-dilatation *e. g.* high fever.

Collapsing or "Water Hammer" Pulse :

A characteristic pulse may be felt at the wrist in aortic incompetence, if regurgitation is free. There is a sharp impact from the rapid filling and sudden rise of pressure associated with a large systolic discharge from the left ventricle and a rapid falling away or a collapse from the subsequent sudden fall of pressure due to regurgitation of blood through the incompetent aortic valve. Such a pulse is accompanied by capillary pulsation due to arteriolar dilatation. The diastolic pressure will be low or even zero.

Pulsus Alternans :

This pulse is regular, but the amplitude is larger and smaller on alternate basis. It is a serious sign of left ventricular failure, and is usually detected best with the sphygmo manometer. There may be a difference of 10-40 mm, between strong and weak beats.

Vessel Wall :

The condition of the vessel wall can be determined by pressing under the pulsating fingers. The condition should be noted for evidence of arterial thickening, tortuosity, and undue mobility. These changes signify medial sclerosis, which, however, is not related to hypertension or narrowing of the lumen.

VENOUS PULSATION

The arterial radial pulse having been examined carefully, attention should be paid to pulsations on the neck and these may be either venous or arterial. In regard to venous distension, attention should be focussed on the internal rather than the external jugular veins, as the latter often give unsatisfactory evidence on account of frequent constriction by the cervical fascia (a connective tissue sheath). Although it is easier to distinguish between the arterial and venous distension, occasionally difficulty arises and then the evidence must be carefully weighed.

Venous pulsation and venous distention prove the following characteristics :

- (1) They can be accentuated by the patient's lying flat, by deep expiration, by coughing and by compression of the abdomen.
- (2) They are usually impalpable or felt with great difficulty.
- (3) Venous pulsation is rarely forcible, but has a gentle diffuse pattern.
- (4) It may be possible to see component waves with each pulsation, provided the heart is not very fast.

If the internal jugular veins are obviously congested even with the patient sitting up, then the venous pressure is markedly increased. With the patient semi-recumbent at an angle of about 45°, venous distension can be seen sometimes in normal people, but never higher than inner end of the clavicle. If the neck veins are distended, it should be known whether they show slow pulsation, because, when the venous distention is due to obstruction, no pulsation is visible.

By the compression of the abdomen (hepatic pressure) with the patient sitting up, the venous pulsation in the neck increases, but the arterial pulsation in the neck remains unaffected. The hepatic pressure will also aggravate jugular distension due to cardiac failure, but not that due to venous obstruction.

Jugular venous tracings show that the venous pulsation is a composite affair consisting of 5 waves per cardiac cycle, designated as the *a*, *x*, *c*, *v* and *y* waves the *a*, *v* and *c* being crests and *x* and

y troughs (hollow). The *a* wave is presystolic as timed by the carotid. The *x* wave is early in systole and is normally greater than the *y* wave. The *v* wave, which is roughly equal in amplitude to the *c* wave, is synchronous with the onset of the diastole. The *c* wave is transmitted from the underlying carotid. Help in the recognition of the individual waves is obtained by simultaneously feeling the carotid with the thumb pressed just below the angle of the jaw.

The following details are appended for recognising various abnormalities :

(1) Absence of *a* waves is seen with auricular fibrillation.

(2) Prominent *a* waves are seen with organic tricuspid regurgitation and may also be found in any patient with congestive heart failure with normal rhythm.

(3) Giant *a* waves are described with severe pulmonary hypertension, severe pulmonary stenosis and tricuspid stenosis. Cannon (sharp) *a* waves are found with complete block, paroxysmal tachycardia and occasionally with extra-systoles.

(4) Large *v* waves are seen with organic tricuspid incompetence.

(5) Increased jugular venous pressure with marked descent is seen with congestive cardiac failure from any cause, and also with constrictive pericarditis.

The causes of venous congestion of the neck (increased jugular pressure) are :

(1) Congestive cardiac failure, where raised venous pressure is then always associated with liver enlargement.

(2) Obstruction of the superior vena cava.

(3) Organic tricupid regurgitation.

(4) Swellings in the neck—these include huge thyroid or very large lymphatic glands compressing the jugular vein.

(5) Increased blood volume, as in acute nephritis.

(6) Very slow heart rate whether of sinus rhythm, or due to heart block.

(7) Severe physical effort, such as, in coughing and tight garments.

Arterial pulsation in the neck Arterial pulsation may be transmitted or expansile, and is best observed with the patient sitting up. If it is transmitted, it will look like a piston working up and down on either side of the neck, being always bilateral. Expansile arterial pulsation may be seen on the right side or in the suprasternal notch, but very rarely on the left side of the neck, and therefore is very rarely bilateral. It is seen with an aneurysm or with a twisted carotid.

(3) PHYSICAL EXAMINATION OF HEART

Inspection :

On inspection of the heart, it is necessary to look for the following characteristics :—

(1) the position and character of apex beat,

(2) abdominal pulsation,

(3) prominence of praecordium (which may indicate a very long-standing cardiac enlargement),

(4) other deformities of the chest, often secondary to spinal deformities, which may cause alteration of the position of the heart, occasionally a systolic murmur and, rarely, right side cardiac involvement, and

(5) systolic retraction.

Apex-Beat :

The apex-beat is usually defined as the position of the outermost or the farthest impulse, although some clinicians favour its description as the position of maximum impulse. The position of the apex-beat gives some assessment of the size of the heart. It is a reliable guide to heart size, when its displacement is not due to the deformity of the thorax, fibrosis of lung, or pleural effusion, and

when apparent displacement is not due to great over-activity, as in thyrotoxicosis. Percussion of the praecordium is helpful, when the apex-beat cannot be felt because of emphysema, but many physicians regard this evidence from percussion of the heart with suspicion.

When feeling for the position of the apex-beat, the whole palm of the hand should be in contact with the chest wall. When pulsation is detected, its exact position is best determined with the pulp of fingers. It is confined to the fifth space and does not lift the palpating fingers. It is only when there is a localised thrust that the position of the apex-beat is a reliable guide to cardiac size.

The characteristics of apex-beat are :

(1) With the enlargement (hypertrophy) of the left ventricle the apex-beat is localised, sustained and more forceful than normal, lifting the palpating fingers with each systole.

(2) If the enlarged left ventricle is associated with some degree of failure, the apex-beat ceases to be sustained and is felt over a wide area and usually does not lift the palpating fingers.

(3) With an enlarged right ventricle, there is often an epigastric pulsation, and there may be a heaving in the region of the lower part of the left border of the sternum between the third and the sixth ribs and this heaving may also affect the lower part of the sternum itself. This phenomenon, often called *parasternal lift* or *heave*, is often more easily felt, with firm palm pressure than seen. It is often present, if an enlarged right ventricle is associated with marked pulmonary hypertension.

(4) It must be emphasised here that in conditions, such as, mitral stenosis and many congenital heart lesions, it is essential to avoid diagnosing parasternal heaves, and tapping apex-beats, unless it is beyond doubt that they are present.

Palpation :

The position of the apex-beat is first noted on inspection and then confirmed by palpation. If it is difficult to feel or see, then getting the patient to sit up and lean forward may help considerably.

If it is not visible or palpable, or only so with great difficulty, then the reasons for this should be at once sought before proceeding further. The cause is but rarely in the heart itself, and obesity and emphysema are the usual explanations but should be acceptable only, if the patient has evidence of either of these. Dextrocardia or gross displacement of the heart due to effusion or tumour are the important causes of the change of apex-beat. It may be noted that the size and shape of the heart are most accurately determined by radiological methods.

Apical thrills :

After determining the size of the heart by inspection and palpation, thrills should be sought for over the whole of the praecordium. The common causes of missing thrills are :

(1) that they are not felt for as a routine,

(2) the patient is not positioned, as thrills at the base are felt better, when the patient is sitting up and leaning forward and at the apex when the patient turns on his left side, and

(3) the hand is pressed too heavily against the chest, because of the desire not to miss any thrills ; but this may have the effect of actually abolishing the thrills. Thrills always indicate an organic disease and the cause must be found. Thrills generally accompany loud murmurs from organic diseases, such as valvular or congenital heart disease. The position of maximum intensity has to be determined.

Percussion :

Percussion of the heart is not always done as a routine. In majority of cases it is of no value. It can be of the greatest importance diagnostically :

(1) in cases of aneurysm of the ascending aorta and of the arch,

(2) in the diagnosis of pericardial effusion,

(3) where there is a huge right or left auricle, when dullness, continuous with the cardiac dullness, may be detectable well to the right of the sternum,

(4) gross diminution of cardiac dullness is an important evidence of emphysema, and

(5) percussion would be the only indication of the size of the heart in a patient in whom the apex-beat is not visible or palpable, e.g. due to emphysema or obesity or when radiology is not available.

Auscultation :

On auscultation attention should be concerned separately with the *rhythm*, the heart sounds and the murmurs (bruits).

Rhythm :

Abnormal rhythms are due to impulses arising from a site other than the sino-atrial node or to interference with conduction. If the rhythm is abnormal, the cause must be one of the following : sinus arrhythmia, extra-systoles, auricular flutter, auricular fibrillation, paroxysmal tachycardia. The second stage is to diagnose which of these abnormalities could possibly be. This reduces the problem to the consideration of two or three arrhythmias. The final diagnosis is to determine exactly which arrhythmia is present. These arrhythmias or irregular hearts have been described in detail at the end of this chapter.

Heart Sounds :

Heart sounds and murmurs are vibrations set up by the main events in the cardiac cycle, and are essentially recognised by auscultation, but when of sufficient intensity, they may be appreciated by palpation. Heart sounds and murmurs are recorded by phonocardiography. In health, the first heart sound, phonetically represented by "*lub*" is louder at the apex and the second, represented by "*dup*" is heard louder at the base. The second sound is described as higher-pitched, more abrupt, and shorter than the first. The pause preceding the first sound (diastole) is longer than that following it (systole). The first sound is due to the closure of mitral and tricuspid valves, and the second sound is due to the closure of the aortic and pulmonary valves. There is a consensus of opinion that there is often a third heart sound which is heard (accentuated) with

organic mitral regurgitation of significant degree with ventricular septal defect, with patent ductus, with constrictive pericarditis and with ventricular failure.

The recognition of the individual sounds is learnt by *diligent* practice. These sounds which are accentuated, diminished and split are heard in the conventional auscultatory areas, as described below.

Aortic Sounds :

The aortic sounds are best heard in the aortic area, in the neck and the apex-beat. If the second aortic sound is very much louder than the pulmonary second sound, and the latter can be heard, then it may be assumed that the aortic sound is *accentuated*. But it may mean that the pulmonary sound is *diminished*. Such accentuation is found with hypertension and with aortic aneurysm. Diminution of aortic sound is found with aortic valvular disease, but should not be regarded as a strong piece of confirmatory evidence. With aortic stenosis, second sound is nearly always diminished.

Pulmonary Sounds :

Frequently, in normal people, the pulmonary second sound is split, and it is the second component of this pulmonary second sound, which is a true pulmonary second sound, so that pulmonary hypertension is diagnosed by the finding of an accentuation of the second component of the pulmonary second sound. The diminished pulmonary second sound is associated with hypotension.

Mitral Sounds :

The common cause of a loud or accentuated mitral first sound is a rapid heart from whatever cause. Mitral stenosis is another cause. Diminution of the mitral first sound occurs with cardiac failure. The commonest cause of an apparent diminution is when the sound appears to be partly replaced by a systolic murmur.

CARDIAC MURMURS (BRUITS)

In disease, murmurs or bruits are a more prolonged series of vibrations than the heart sounds. It is important to describe all

murmurs in full details and not dismiss them as merely systolic or diastolic. If a murmur is heard, it is essential to assess carefully all the following features, namely, timing, duration, pitch or quality, area of maximum intensity, conduction, presence of a thrill, if any, and alterations with exercise, posture or respiration.

Timing :

The technique of commencing auscultation at the aortic area, where it is easier than at the apex to differentiate between the first and second sounds, often helps to time murmurs. The usual way to time murmurs is to place a finger on the point of maximum cardiac impulse and thus recognise the first sound which is synchronous with it. If the cardiac impulse is forceful, it may lift the *bell* of the stethoscope with each systole, thus giving the timing of the first sound and so of any bruit.

Duration :

The duration of a murmur, especially a systolic one at the apex, may be very important, as a long bruit occupying the whole (pansystolic) or greater part of the systole is much more *likely to be* significant than a shorter one. The typical bruit of mitral regurgitation (functional or organic) is pansystolic. The typical bruits of the aortic or pulmonary stenosis does not last throughout systole. 'With a patent septum, atrial or ventricular, the duration of the bruit may be anything from very short to pansystolic'.

Quality or Pitch :

When describing the quality of a murmur, the conventional epithets, loud, soft, rough, blowing, or rumbling should be used. The general tendency to classify them as *innocent* and *organic* murmurs is not correct, as the distinction is largely based on loudness, and most of these murmurs start as soft ones.

Maximum Intensity :

The position of maximum intensity need not be pin-pointed to some small area. Generally, one should state that the murmur is maximum to the left or right of sternum and over the upper or lower part of the sternum, being precise only when one is absolutely certain.

Conduction :

Conduction or propagation of a bruit, especially systolic can be important, because significant systolic murmur at the apex is likely to be conducted to the axilla and one at the aortic region to the right side of the neck. Conduction of systolic murmur into the right side of the neck is frequently missing, because the observer has listened too high and too laterally above the clavicle. If a systolic murmur is heard at the base, then it is advisable to listen immediately above the inner end of the clavicle, and if that murmur is heard there, regardless of whether it is soft or loud, it must be deemed that the murmur is conducted into the neck.

Thrills :

These have been discussed previously. They must be regarded as a feature of the bruits, and not described independently, as is so often done. The modern view is that the presence or absence of a thrill depends upon the loudness of the bruit.

Effect of Exercise :

Exercise frequently brings out murmurs, and therefore absence of murmurs should not be presumed, until the patient has been exercised, and, in the case of a blowing diastolic murmur, has also been made to sit up and auscultation has been carried out after deep inspiration and then deep expiration, followed by the holding of the breath and in the case of the rumbling diastolic murmurs, has been turned on his left side. A systolic bruit that varies with exercise, posture of respiration, is less likely to be significant than the one that is independent of these procedures.

Significance :

All diastolic murmurs should be considered significant and an explanation for them sought. A systolic murmur may or may not be significant. A systolic murmur with a thrill is always a significant one. When discussing the possible significance of a systolic murmur, a decision should be made whether such a murmur is more likely to be due to a congenital lesion or an acquired lesion. When a systolic murmur is present as the only physical sign and no radiographs are available, it is very rarely possible for a certain diagnosis

to be given, and is merely an exercise, weighing up the pros and cons for each possible lesion.

Some characteristic murmurs should be noted, *e.g.* :

- (1) Pansystolic murmur of mitral regurgitation,
- (2) shorter, harsher mid-systolic murmur of aortic or pulmonary stenosis,
- (3) the harsh, crescendo pre-systolic murmur at the apex, leading up to a sudden loud first sound in mitral stenosis, and
- (4) the blowing early diastolic murmur of aortic regurgitation, best heard down the left sternal border.

It will be appreciated that in the presence of tachycardia, it may be difficult to define the position of a murmur in diastole. In these circumstances, interpretation of the murmur depends upon its other characteristics.

Phono-cardiography :

It is a graphic method of registering heart sounds and murmurs. By means of sensitive microphones, valve amplifiers and multiple galvanometers, synchronous records from various sites on the praecordium may be made and characteristics of human hearing may be represented. By this means permanent records of auscultatory findings, at particular times in the natural history of the disease may be made. Heart sounds may be accurately timed and identified and special features may be determined.

(C) RADIOLOGY AND ELECTRO-CARDIOGRAPHY

Electro-Cardiography :

Electrocardiography plays an important part in the diagnosis and investigation of all forms of heart diseases. Its main value lies in the elucidation of cardiac arrhythmias and conduction defects (See end of chapter II), and in the information which it provides about the state of myocardium. Electro cardiography has achieved

a high degree of accuracy in the diagnosis and location of myocardial infarction and is of particular value in cases of unexplained chest pain or collapse.

The electro-cardiograph is a sensitive meter which amplifies and records the difference in electrical potentials between any two points on the surface of the body. It is capable of detecting the electrical activity (depolarisation and repolarisation) which precedes muscle fibre contraction, and the electro-cardiogram is the graphic representation of these electrical changes. It does not represent the actual muscular contraction.

The waves pre seen in *unipolar leads*, can be understood in relation to be changes which occur during stimulation of a single muscle cell. In its resting condition, a cell is in a state of electrical balance. When the cell is stimulated at one end, the activation process spreads rapidly through the cell, and for a very long time a potential difference exists between that part of the cell which has been activated and the part which is still in its resting state. This transient potential difference can be detected by a galvanometer, the needle of which will show a deflection. The P. wave and QRS complex of the ECG corresponds to the deflection. As the impulse spreads through the cell, contraction occurs, and after a short interval, recovery process takes place, restoring electrical balance. The T wave of an ECG corresponds to this recovery process.

If the passage of an impulse along a strip of heart muscle is recorded by unipolar lead, the deflections of the galvanometer and hence the waves of the ECG will vary according to the position of the exploring electrode in relation to the muscle strip. When the muscle moves towards the electrode, a positive wave R ($_ \Delta _$) is recorded, when the impulse moves away from the electrode a negative wave Q or S ($_ \nabla _$) is recorded.

This simplest type of electro-cardiograph consists of a galvanometer, and two metal plates (electrodes) which are attached to two points on the body surface. The resulting tracing is termed a "Lead"

Radiology :

As already mentioned, radiologic examination is indispensable for the accurate determination of the size and shape of the heart. Radiology enables not only the width but also the depth of the heart to be seen. The presence or absence of valvular classification can also be determined. The oesophagus can be outlined by giving the patient some barium emulsion to swallow. This will help to show backward enlargement of the left atrium in mitral stenosis in the right oblique position.

Radiographs are useful for record purposes and for studying the details of abnormalities in the lung fields and also the size of individual chambers and of the great vessels. Characteristic configurations are often to be seen in the various forms of valvular and congenital heart diseases in syphilitic aortitis and in aneurysm of the heart.

Congestion and oedema of the lungs and small pleural effusions can be shown radiologically before they can be detected clinically. Horizontal septic lines in the costophrenic (costo-means rib ; phren-means diaphragm) angles, from dilated lymphatic vessels, are a particularly important sign of pulmonary venous hypertension.

Radioscopy :

The study of the heart, preferably with the aid of an image intensifier screen, is of value in the detection of abnormal pulsations and of classification.

(D) HIGHLY SPECIALISED TECHNIQUES OF HEART EXAMINATION**Angiocardiography :**

The individual chambers of the heart and the great vessels may be visualised by the injection of the radio-opaque material into a vein or by catheter directly into the heart before making a series of radiographs in rapid succession. Such studies are very useful in the differentiation of various cardiac lesions and of vascular from other abnormal mediastinal shadows.

Cardiac Catheterisation :

This is the technique of passing a radio-opaque catheter from a vein into the right atrium, right ventricle, pulmonary artery and its right or left branches or from an artery into the aorta or the left ventricle. If necessary, the left atrium or left ventricle can be punctured with a needle. Three kinds of information can be obtained by means of cardiac catheterisation :

(1) pressure may be measured in any heart chamber or in the great vessels,

(2) samples of blood for gas analysis may be obtained from these sites, and

(3) derangements of anatomy may be demonstrated by observing the passage of the radio-opaque catheter, by the injection of radio opaque dyes or by the injection of other substances whose time-dilution curves may be detected at some other point in the circulation.

(E) CARDIAC EFFICIENCY TESTS

These efficiency tests are primarily of such cardiac diseases as are characterised by breathlessness on exertion, or appearance of cardiac pain. There are two tests which are applied to determine cardiac efficiency :—

(1) **Simple Test.** The patient is made to walk up forty steps, one step after another and is examined immediately, or

(2) He is made to step on the right and left foot 20 times on each, raising at the same time the shoulder about 6 inches, or

(3) He is asked to step up 20 times on and off on an 18 inch high chair. In a normal person, there is no breathlessness. The pulse rate may rise by 10 to 23 beats per minute, but this subsides in 2 minutes. With a person of diminished cardiac efficiency, this exercise will cause breathlessness.

(2) **Laborious Test.** Another test is to give to the patient a weight of 10 to 20 pounds to raise from the ground above the

head for 2 seconds. A normal person is able to do this 30 to 60 times without becoming breathless. The test counts for his efficiency. This test is given to persons who have passed the simple test. It should be born in mind that in some persons palpitation, dizziness or faintness may appear without causing dyspnoea or pain.

III—DISEASES OF PERICARDIUM

PERICARDITIS

Definition :

Pericardium is a double membranous sac which envelops the heart. *Acute pericarditis* is an inflammation of the outer serous membrane covering of the pericardium. Pericarditis occurs generally in three forms :

(1) *Simple dry or fibrinous pericarditis.*

(2) *Simple pericarditis accompanied by serous effusion, and*

(3) *Chronic adhesive or constrictive pericarditis* with formation of adhesions between the two membranous layers. This is also called *pick's disease*.

Etiology :

Benign simple pericarditis among children and adults is probably due to a virus infection (the coxsackie group being more frequently detected) or acute rheumatic fever (rheumatic pericarditis which is rare). Sometimes, it is caused by pyogenic bacterial infections (septic pericarditis), and sometimes, by tuberculosis (tuberculous pericarditis which is uncommon). Chronic adhesive or constrictive pericarditis in older patients results from chronic diseases like nephritis, carcinoma, trauma or as a result of acute pericarditis. The causes of pericarditis may be summarised as follows :—

(1) Rheumatic fever.

(2) Tuberculosis.

(3) Myocardial infarction.

- (4) Pyogenic infection.
- (5) Uraemia.
- (6) Malignant disease.
- (7) Trauma.
- (8) Serous pericarditis.
- (9) Connective tissue (Collagen) disease.
- (10) Accidental Trauma (thoracotomy).

Features :

(A) **Stages.** There are two stages :

(a) State of inflammation, featuring as follows :—

- (1) Anxious, troubled look and flushed face with fever, rapid pulse, sever dyspnoea and pain over heart.
- (2) Physical signs of double friction, sounds like that of a see-saw along with tenderness, and

(b) State of effusion with inflammation, subsiding in the course of a day or two.

(B) **Types :**

- (a) Paricarditis may be fibrinous, serous, haemorrhagic or purulent.
- (b) In fibrinous variety there is fibrinous exudate on the surface leading to adhesion formation; in serous variety, there is in addition a serous exudate; in effusion variety, the fluid is straw coloured and strongly turbid, and the haemorrhagic effusion suggests a malignant origin. The purulent variety is due to pyogenic infection.

Symptoms :

(1) Pain is not always present and is dependent on the involvement of neighbouring pleuras and is not present in uraemic, and other malignant conditions.

(2) Some degree of dyspnoea is present in large effusions, and nearly in all cases the patient cannot lie down.

Signs :

(1) **Friction rub.** Pericardial friction is the characteristic and diagnostic sign. It consists of scraping scratching sound, best heard on the left of the sternum aggravated by inspiration.

(2) **Pulse.** Rapid and accelerated pulse with a beat of 100 to 120 per minute.

(3) **Effusion.** Signs of effusion are detected after at least 500 ml of fluid has accumulated. The area of dullness increases to the left of the sternum and may extend beyond the apex on lying down, heart sounds are muffled. Bronchial breathing may be found below the angle of left scapula from compression of the lung.

(4) **Cardiac temponade.** The stroke output of the heart is diminished ; tachycardia occurs, the blood pressure falls, venous pressure is increased.

(5) On radiology in case of a large effusion, obliteration of the normal contours of the heart, widening of the base and diminished pulsation of the borders may be seen. Serial cardiograms may reveal in T segment and T waves a pattern of diagnosis.

Differential Diagnosis :

Pericarditis is distinguished from endocarditis by the sounds of the valvular murmurs in the two diseases as tabled below :—

<i>Endocardial Murmurs</i>	<i>Pericardial Murmurs</i>
1. May accompany 1st or 2nd sound only or both. If double, there is a small interval.	1. Usually double without any interval.
2. Often loudest at one of the valvular areas.	2. Usually loudest over 3rd left costal cartilage.
3. May be conducted into axilla	3. Mostly confined to the pericardium.
4. Usually no pain or tenderness.	4. Often accompanied by pain.

Prognosis :

In rheumatic cases, immediate prognosis is not bad, unless the valves are much diseased. Pericarditis associated with purulent effusion or chronic nephritis is usually grave.

Treatment :

General : (1) absolute rest in bed,

(2) hot application to the seat of pain, and

(3) diet to be liquid and nutritious, no stimulants, unless especially called for by symptoms.

Curative :

(1) **Kalmia**. Acute pericarditis, depending upon rheumatism, calls for this remedy. There are sharp pains and too rapid pulsation of the heart to indicate it.

(2) **Aconite**. In pericarditis, when the inflammation sets in with high fever, intense mental anxiety, numbness of left arm, tingling in fingers, oppression and palpitation, worse from walking. There is also intense pain with lancinating stitches in the heart.

(3) **Rhus Tox**. Pericarditis after getting wet; worse at every change of weather. Also pericarditis due to septic condition. While *Bryonia* may be an early remedy in pericarditis, *Rhus Tox*. will follow *Bryonia* with good results in cases of rheumatic origin. *Bryonia* should be prescribed especially, when pleuritic symptoms, with acute stitching pains, are present.

(4) **Strophanthus**. Will relieve dyspnoea and pericardial pain and remove dropsy.

(5) **Lachesis**. The heart feels too large for chest, and dropsy is present with symptoms of coronary thrombosis.

(6) **Arsenicum** is especially useful in pericarditis after suppression of measles or scarlet fever. Restlessness, anxiety, oedema, puffiness of eyes, and swelling of feet must be present. Aggravation after midnight and great dyspnoea on lying down are the characteristic features.

(7) **Cactus G.** Great dyspnoea ; hard, tense and quick pulse ; pricking pains which impede breathing ; cannot lie on the left side ; sensation of constriction, as if the heart is squeezed by a vice.

(8) **Ver. Alb.** For stage of collapse, when the heart is violent in its action and there is cold sweat on forehead ; dyspnoea with oppression of chest.

(9) **Iodium.** (Preferably, *Iodide of potash*). It revives the plastic and serous exudation. There is violent palpitation which is worse from the least motion ; constant oppressive pain in the region of the heart.

(10) **Naja** is used after inflammation has subsided.

(11) **Sulphur** is the best remedy to absorb the fluid that has existed for a long time.

(12) **Spigelia.** For rheumatic pericarditis with violent palpitation which raises the walls of the chest. There is purring of the heart and trembling of the carotids and stitches about the heart. The patient can only lie on the right side with trunk raised. The least motion produces great suffocation.

IV—DISEASES OF THE ENDOCARDIUM

ENDOCARDITIS

Definition :

Endocarditis is an acute progressive inflammation of the membrane, lining the inner side (cavity) of heart and covering the valves. The heart valves are, thus, characteristically involved, as a result of the swollen and reddened heart.

Etiology :

Endocarditis may be of four types :

(a) *Non-bacterial, (simple or rheumatic endocarditis)*, which is generally due to rheumatic infection, causing swelling of the entire endocardium including entire valve area (valvulitis).

(b) *Acute bacterial endocarditis* which is due to the presence of pyogenic infections by staphylococcus, streptococcus, pneumococcus or other organisms present in some parts of the body, whence they are carried to heart.

(c) *Sub-acute bacterial endocarditis* which is often caused by infection with *streptococcus viridans*, generally present in teeth, tonsils or the upper respiratory tract.

(d) *Syphilitic aortitis* (syphilitic heart disease) due to syphilis, affects the aortic valve and (see page 149) sometime the anterior cusp of the mitral valve. Endocarditis of all types affects mainly the valves on the left side of the heart, viz. mitral and aortic valves. In *congenital heart disease* the tricuspid valve is also involved.

(A) RHEUMATIC ENDOCARDITIS

(See also Rheumatic fever)

Clinical Features :

(1) The patient is usually between 10 and 20 years of age suffering from rheumatic fever.

(2) The pulse rate may gradually rise with the rise in temperature.

(3) In certain cases, apex-beat may move out slightly and a localised systolic murmur may be heard on account of dilatation, but may disappear. In others, the systolic and the diastolic murmur may persist on account of some damage to the valves.

(4) Sometimes it is associated with dry pericarditis.

(B) ACUTE BACTERIAL ENDOCARDITIS

Clinical Picture :

This disease is less common than the sub-acute form.

(1) The patient is taken ill with a high irregular temperature during the course of some other illness like pneumonia, puerperal fever, a wound, or a boil.

(2) The heart is usually dilated, and varying cardiac murmurs are heard.

(3) There may be progressive anaemia, sweats, and rigor.

(4) Haemorrhages are often present, as indicated by pain in the splenic region, haemorrhagic spots or haematuria.

(5) There may be drowsiness and mental indifference with or without diarrhoea.

(6) Blood culture is usually positive with a high count of white corpuscles.

(7) There may be albuminuria.

(8) Marked toxæmia, tachycardia, leucocytosis are diagnostic signs. The clinical picture is that of pyæmia. The endocarditis is usually a complication of osteomyelitis, pneumonia, multiple abscesses, or suppurative arthritis. Fortunately the condition is relatively un-common.

(C) SUBACUTE BACTERIAL ENDOCARDITIS

Introduction :

This type of endocarditis is confined to patients with a pre-existing valvular lesion, which may sometimes be congenital or more common of rheumatic origin.

Etiology :

Infection occurs on a heart which is already damaged. As already said, the infection by streptococcus viridans in 80% of cases not infrequently develops in patients with heart disease after the extraction of a septic tooth and after minor operations. Bacterial endocarditis is especially associated with certain types of heart disease :

(1) Rheumatic heart disease is present in more than half of the cases.

(2) Patients with congenital heart disease are often affected.

(3) The aortic valves are occasionally affected in syphilitic aortitis.

(4) An atherosclerotic valve ring occasionally appears to be the site of infection. Both sexes are equally affected between 15 and 55 years of age.

Clinical Picture :

(1) Frequently the illness starts as a general malaise with slight fever which remains unabated, the examination revealing a valvular lesion, an old trouble.

(2) Complexion is sallow, the patient suffering from anaemia, night sweats, slight loss of weight, petechial haemorrhagic spots.

(3) Now and then symptoms of embolism occur.

(4) In some cases there is pain in the extremity of finger or toe with redness and swelling.

(5) The spleen is palpable and there may be abdominal pain.

(6) Fever may now and then fall but usually it continues without improvement in the general condition.

(7) Albuminuria or haematuria indicate nephritis.

(8) More often death occurs from heart failure.

(9) In some cases the onset is relatively acute and have mild symptoms and the signs and symptoms are dependent on two main factors.

(i) Septicaemia,

(ii) and the embolic phenomena. The severity of the disease depends upon the virulence of the infection.

(10) In a small proportion of cases the acute condition may subside and the patient may remain apparently healthy, though relapse is liable to occur.

(11) The spleen which is enlarged may show infarcts

(12) The liver may be of nutmeg type.

(13) The kidney may be the site of multiple emboli.

(14) In the brain there may be areas of softening.

Diff. Diagnosis :

It is necessary to differentiate this from *Typhoid fever*, *Tuberculosis*, and *Suppurations* though it is not so easy. In *Sub-acute bacterial endocarditis*, the main symptoms are intermittant haematuria petechial haemorrhage, variable valvular murmurs, splenic enlargement and progressive anaemia. Blood cultures will clear the diagnosis.

Treatment :

General : (See Pericarditis and Rheumatic fever).

Curable :

The chief remedies are :

(1) **Aconite** is indicated in endocarditis, when the inflammation sets in with fever and intense mental anxiety.

(2) **Spigelia** is useful in acute and rheumatic variety, when there are sharp pains shooting from the heart to the back. An irregular and tumultuous heart calls for this remedy.

(3) **Cactus G** is employed in endocarditis, when there is the sensation of the heart, being first grasped with an iron hand and then relaxed alternately.

(4) **Kalmia** is useful in cases of endocarditis, when rheumatism has been suppressed by external applications.

(5) **Digitalis** is indicated in sudden onsets of endocarditis with characteristic symptoms of quick pulse changing to an irregular intermittent pulse.

(6) **Cantharis** is used in valvular diseases with scanty urine, dropsy and great breathlessness.

(7) **Arsenic Alb.** Endocarditis due to suppression of measles or scarlet fever, when the patient cannot lie down or go upstairs.

(8) **Aurum.** Rheumatic pains, previously wandering from joint to joint, become fixed to region of the heart and cause great anxiety. The patient has to sit up quietly in the upright position ; palpitation with irregular and intermitting pulse and short breath ;

feeling as though the heart stopped beating for a while and then one hard thump was felt.

(9) **Iodine.** Should be given, if *Spigelia* (see no 2) failed to act within 2 or 3 days.

(10) **Kali Carb.** Where, in place of the first tick, a blowing noise and louder second tick of the pulmonary artery is heard, and stagnation already exists in the pulmonary circulation.

V—CHRONIC VALVULAR DISEASES OF THE HEART

The description of all forms of chronic valvular disease has been grouped together under one head, because the manifestations are independent of etiology.

The principal cause of valvular disease is rheumatic endocarditis. This most commonly affects the mitral valve, next the aortic valve, comparatively infrequently the tricuspid valve and very rarely the pulmonary valve. Syphilis may affect the aortic valve, but not the others. Congenital lesions are responsible for most cases of pulmonary valvular disease.

A diseased valve may be narrowed (stenosis) or may fail to close adequately and thus permit regurgitation of blood. The term incompetence may be used synonymously with regurgitation, but the latter is preferable, as a stenosed valve is also an incompetent valve. Regurgitation may be present without structural changes in the cusps e.g. from dilatation of the mitral valve ring in ventricular failure, the tricuspid valve ring in right ventricular failure, or the pulmonary valve ring in pulmonary hypertension.

MITRAL VALVULAR DISEASE

Etiology :

(1) *Mitral Stenosis* is almost always due to rheumatic heart disease, although only some 60% of adult patients give a history of rheumatic fever. In the majority of patients with acute rheumatic carditis, the mitral valve is damaged and it is affected in some 83%

of cases of chronic rheumatic heart disease. During the first attack of rheumatic carditis, mitral valvular disease causes incompetence, but this is a transitory lesion, and many patients ultimately develop *Stenosis*.

(2) Mitral stenosis is more common in females in the ratio of 3 : 1. *Pure organic regurgitation* in adults is relatively rare and is probably due to rheumatism in most cases. Men are affected more commonly than women. *Functional mitral regurgitation* is common.

(3) It develops when ventricular dilatation from any cause results in the dilatation of the valve ring and the stretching of the chordae tendineae and papillary muscles. Bacterial endocarditis may cause ulceration of mitral valve cusps or rupture of chordae tendineae, producing acute mitral regurgitation or an increase of pre-existing regurgitation.

(4) Occasionally 'fracture' of chordae tendineae may occur at the junction with papillary muscles as a result of cardiac infarction.

MITRAL REGURGITATION

In mitral regurgitation, the left atrial volume increases with ventricular systole, and the left ventricle is overfilled during diastole, but its output per beat into the aorta is unchanged, until left ventricular failure develops.

Symptoms :

(1) There are no symptoms peculiar to mitral incompetence. The pure lesion is well tolerated and many patients remain active, up to 60 or 70.

(2) Palpitation due to extra-systole is common.

(3) Some patients complain of fatigue and weakness rather than breathlessness, which tends to appear late.

(4) Some may die of intercurrent disease.

(5) Patients with severe mitral regurgitation develop heart failure.

Signs :

(1) A pansystolic murmur maximal at the apex is often conducted towards the left axilla. The murmur may be accompanied by a thrill.

(2) In contrast to mitral stenosis, the first heart sound and the opening snap are weak or absent and third sound may be present.

(3) Enlargement of the left atrium is there and can be detected radiographically.

(4) There is enlargement of the left ventricle, which may be felt as a distinct thrust at the apex of the heart or seen radiologically.

(5) Left ventricular hypertrophy may be demonstrated by electrocardiography.

Complications :

(1) Bacterial endocarditis may occur at the scarred valve in mild cases. It is not an uncommon complication in mild cases when mitral systolic murmur is the only evidence of abnormality.

(2) Systemic embolism is uncommon compared with the frequency in mitral stenosis.

Diagnosis :

A pansystolic murmur or a late systolic murmur which is loudest at the apex and engulfs the second sound is highly suggestive of mitral regurgitation. A hyperdynamic apex-beat is a further evidence. Expansion of the left atrium in ventricular systole seen on radioscopy is confirmatory.

Prognosis :

The prognosis depends upon the cause and severity, the state of the myocardium and presence or otherwise of complicating factors.

MITRAL STENOSIS

The essential feature of mitral stenosis is obstruction to blood flow through the valve orifice during diastole. Symptoms are not produced, until the area of the orifice is reduced from normal 8.5 cm^2 to approximately 2.5 cm^2 , although the signs are present with the lesser degree of stenosis. Most patients are bedridden, when the valve is less than 1 cm^2 .

In significant mitral stenosis, the blood flow to the left ventricle is diminished and the pressure and volume of blood in the left atrium rises, and leads to pulmonary venous hypertension and congestion, hypertrophy and dilatation and eventually to the failure of the right side of heart. *Atrial fibrillation* is a common complication which aggravates the haemodynamic effect.

Symptoms :

(1) Some patients with mild stenosis are asymptomatic.

(2) Sooner or later, most patients develop the following symptoms, which ultimately lead to congestive heart failure.

(3) Dyspnoea on effort tends to occur during early adult life in most patients ; cardiac asthma may occur during the day, but is more common at night, and often occurs during pregnancy. Some reach the stage of pulmonary oedema.

(4) Pulmonary oedema tends to occur in patients with slight or moderate hypertension, characterised by extreme respiratory distress, expectoration of pink frothy sputum, cyanosis and hypotension.

(5) *Haemoptysis* is a common symptom at various stages.

(6) *Pain in the chest* is not a prominent feature, but there are three types :

(i) a submammary distress, which is psychogenic and reflects anxiety about the heart condition.

(ii) a dull praecordial discomfort, when there is great cardiac enlargement, and

- (iii) true ischaemic cardiac pain which is due to the failure of coronary circulation, when there is a low cardiac output, pulmonary hypertension and anaemia. Most patients do not complain of this pain.

(7) *Dysphagia*, a dry persistent cough or hoarseness of the voice, may occur from pressure on adjacent mediastinal structures by the enlarged left atrium which may cause paresis of the left recurrent laryngeal nerve.

Signs :

(1) Peripheral cyanosis and a small volume of pulse may be present.

(2) The apical impulse (apex-beat) is often "tapping" in quality and corresponds to the loud first sound. A right ventricular thrust may be felt behind and to the left of the lower sternum and in the epigastrium.

(3) A diastolic thrill is often palpable at the apex.

(4) A diastolic murmur maximal at, or confined to the region of apex-beat, is the hallmark of mitral stenosis.

The murmur may be presystolic in time, and is usually low-pitched and rumbling in quality and best heard with the patient lying on the left side or in early cases by exercise.

(5) The first heart sound at the apex is characteristically loud and sudden. The second heart sound at the base is accentuated from pulmonary hypertension. An added sound, the opening snap, coinciding with the opening of the mitral valve, may frequently be heard immediately preceding the mid-diastolic murmur.

(6) Enlargement of the left atrium can readily be seen on radiological examination, especially in the right oblique position. Later enlargement of the pulmonary artery and the right ventricle occurs. Calcification of the mitral valve may be observed.

(7) Left or right atrial hypertrophy and right ventricular hypertrophy may be detected by electrocardiography.

Complication :

- (1) Haemoptysis.
- (2) Cardiac asthma.
- (3) Pulmonary oedema, and
- (4) Pulmonary infarction are sufficiently common.
- (5) The peripheral emboli arising from clot in the left atrium is most important.

Diagnosis :

The diagnosis of mitral stenosis depends upon auscultation and radiology. A loud and sharp first heart sound, usually palpable, is strongly suggestive, but a low-pitched mid-diastolic murmur at or near the apex is the essential evidence of mitral stenosis. The opening snap is a further evidence, when there is a doubt about the above mid-diastolic murmur. Particular attention should be paid to paroxysmal dyspnoea, haemoptysis, 'history of embolism,' rhythm, the signs of pulmonary and systemic congestion and the presence of hypertension.

Differential Diagnosis :

Haemoptysis and dyspnoea may suggest a pulmonary disease ; paroxysmal dyspnoea may suggest left ventricular disease or bronchial asthma, and embolism may cause symptoms referable to any organ, but when the physical signs of the mitral valve lesion are recognised, the etiology of these symptoms is usually clear.

Prognosis :

A majority of patients live a normal life span, and a minority deteriorate progressively from attacks of rheumatic fever in childhood and adolescence. The most die of the disease between the ages of 30 and 50, the average age of death being 35. The prognosis of an individual case depends on the full assessment of many factors.

AORTIC VALVULAR DISEASE OF THE HEART

AORTIC STENOSIS

Definition :

The narrowing of the aortic orifice to one-quarter or less of its normal size causes symptoms and signs from the decreased cardiac output, decreased coronary flow and left ventricular hypertrophy which eventually results in the left ventricular failure.

Etiology :

Many patients have aortic stenosis due to rheumatic fever usually in association with aortic regurgitation and mitral stenosis. Many cases of pure or predominant aortic stenosis are of congenital origin, and in these the valve is often bicuspid as a result of calcification. There is a striking predominance of males (about 3 to 1) over females. An aortic systolic murmur from a sclerotic valve but with no significant obstruction is a frequent finding in the elderly.

Symptoms :

- (1) Slight or moderate stenosis causes no symptoms.
- (2) Severe aortic stenosis causes shortness of breath on exertion which progresses to paroxysmal nocturnal dyspnoea on account of left ventricular failure.
- (3) Cardiac pain on effort is caused by diminished coronary flow.
- (4) The reduced cardiac output causes dizziness, 'black-out', or even syncope, the attacks of which may be severe and frequent.

Signs :

- (1) The pulse is slow and rises slowly.
- (2) Blood pressure is normal or low with decreased pulse pressure.
- (3) Palpation may indicate hypertrophy of the left ventricle and there may be a systolic thrill at the base.
- (4) A systolic murmur is best heard in the aortic area which may be loud enough to produce a thrill and is well-transmitted to the neck.

(5) A harsh murmur in mid-systole is best heard either to the right of the upper sternum to the left border or even at the apex. It may be transmitted into the carotid artery.

(6) A faint aortic diastolic murmur, indicating a minor degree of aortic incompetence is not uncommon.

(7) The aortic component of the second sound may be soft or absent.

(8) Left ventricular hypertrophy may be confirmed by radiography and electrocardiography.

(9) Calcification of the aortic valve may be seen on the radiograph, particularly with an image intensifier screen.

Complications :

Bacterial endocarditis may occur at any time in the course of the disease, even in the early stages when the only physical sign is a mid-systolic murmur. Sudden death is not infrequent once symptoms have developed.

Diagnosis :

A diagnosis of aortic stenosis is made by finding a slow rising pulse, and aortic systolic murmur and evidence of left ventricular hypertrophy.

In active rheumatism with aortic valvulitis without stenosis there is a soft or moderately loud aortic systolic murmur but no abnormal pulse or evidence of left ventricular hypertrophy. In aortic incompetence, there is usually an aortic systolic murmur, and when associated with aortic dilatation, as in syphilis, there may be a loud systolic murmur and even a thrill, but the pulse is water-hammer and the left ventricle feels hyper-dynamic as well as hypertrophied. The systolic murmur in mitral incompetence is always pansystolic and this distinguishes it from aortic systolic murmur in aortic stenosis.

Prognosis :

The course may be long and benign. Once symptoms of cardiac failure have been noticed, the course is usually downhill.

Angina pectoris and syncope on effort adversely effect prognosis and sudden death is not uncommon.

AORTIC REGURGITATION

Definition :

Aortic regurgitation is the back flow of blood into the left ventricle due to the damaged aortic cusps, a dilated valve ring or a combination of these circumstances. This regurgitated blood increases the residual left ventricular volume and stretches the myocardium, causing a more vigorous contraction of the left ventricle and a 'steep rise' of intra vascular pressure.

Etiology :

(1) Rheumatic Valvulitis is by far the commonest cause of aortic regurgitation and in most cases, there is the additional involvement of the mitral valve.

(2) Syphilitic aortic incompetence is now less commonly seen.

(3) In severe hypertension, stretching of the aortic ring may cause a minor degree of incompetence.

(4) Damage to the aorta, from a dissecting aneurysm, occasionally causes aortic incompetence.

(5) Bacterial endocarditis is rarely the primary cause, although it may increase the pre-existing damage and is the commonest cause of a ruptured aortic cusp.

(6) A minor degree of incompetence is found frequently from a bicuspid aortic valve in patients with coarctation of the aorta.

(7) It is occasionally seen in association with ankylosing spondylitis and ulcerative colitis.

Symptoms :

(1) A slight or moderate degree of incompetence does not produce symptoms for many years.

(2) Shortness of breath on exertion is usually the first symptom and paroxysmal nocturnal dyspnoea and cardiac asthma tend to follow rapidly, if left ventricular failure is not treated.

(3) Ischaemic pain is not uncommon especially in syphilitic group.

(4) Pain tends to occur during attacks of paroxysmal nocturnal dyspnoea as well as on effort.

Signs :

(1) The pulse of aortic incompetence rises steeply in systole and gives a characteristic tap to the palpating finger, and this pulse is described as a 'water-hammer'. The rapid fall of pressure produces a collapsing quality. These signs are best felt in radial artery. There is an abrupt and sudden impact against the examining finger with the collapse.

(2) The characteristic sign of aortic regurgitation is a high pitched, blowing, early diastolic murmur commencing immediately after the second heart sound best heard down the left sternal edge with the patient standing or sitting and the breath held in expiration. A blowing systolic murmur from the increased volume output is a common accompaniment.

(3) Hypertrophy of the left ventricle leads to the displacement of the apex-beat downwards and to the left and to the heaving impulse.

(4) There is low diastolic blood pressure with high pulse pressure.

(5) Visible arterial pulsation in the carotid arteries (Corrigan's sign), and

(6) Pink and warm extremities with capillary pulsation in the nail beds.

(7) Radiography will show the degree of left ventricular hypertrophy and electrocardiogram may show the pattern of left ventricular hypertrophy.

Complications :

(1) Bacterial endocarditis may occur at any time in the rheumatic group but is 'extremely rare in the syphilitic group.'

(2) Rupture of a damaged aortic cusp is usually due to superimposed bacterial endocarditis and tends to be a serious complication owing to the increase in strain on the left ventricle.

(3) Recurrence of rheumatic endocarditis may precipitate heart failure.

Diagnosis :

The diagnosis of aortic regurgitation in mild cases is made by hearing an 'Early diastolic murmur'. To distinguish it from a pulmonary diastolic murmur, the latter is almost confined to patients with great pulmonary hypertension with its characteristic physical signs. In severe aortic incompetence, the combination of a water-hammer pulse, enlarged left ventricle and early diastolic murmur are characteristics.

Prognosis :

Minor degrees of aortic incompetence are compatible with a long and full life. As soon as severe aortic incompetence causes symptoms, the downhill course is usually rapid, and heart failure occurs with normal rhythm. The outlook of patients with rheumatic aortic incompetence is better than those with syphilitic aortitis.

TRICUSPID VALVE DISEASE OF THE HEART

Etiology :

Functional *tricuspid incompetence* is a common condition ; it results from dilatation of the right 'heart', and thus usually accompanies congestive heart failure.

Organic tricuspid valve disease is mostly due to chronic rheumatic valvulitis. It is much less common than chronic mitral valve disease, with which it is usually associated. By examination at 'necropsy', it has been found that some degree of tricuspid valvulitis is present in about one-third cases of chronic rheumatic valvulitis.

Tricuspid Stenosis is rarely due to congenital malformation, but tricuspid incompetence may result from a curious congenital malformation in which the cusps of the valve are incompletely formed or displaced into the right ventricular chamber.

In general, the pathological findings in organic tricuspid valve disease are the same as in mitral valve disease. In the rare, pure tricuspid valve lesions, however, the left heart and the lungs are relatively normal.

Symptoms :

(1) As most cases are associated with mitral stenosis, there is dyspnoea on effort in addition to weakness.

(2) Tricuspid valve disease usually prevents all forms of paroxysmal dyspnoea. In fact, when functional tricuspid insufficiency develops in left ventricular disease or mitral stenosis, the patient is often relieved of cardiac asthma.

(3) Severe symptoms may develop from extreme congestion of all organs.

(4) Dyspepsia, pain in the right hypochondrium and insomnia are common features.

Signs :

(1) In advanced chronic cases, wasting, slight jaundice, peripheral cyanosis, hepatic enlargement and recurrent ascites are common.

(2) Tricuspid incompetence causes an augmented atrial wave in the venous pulse ('a' wave) which is short and presystolic. It appears to rise slowly in the neck veins

(3) Various murmurs are frequently present from associated valve lesions. But a pansystolic murmur is best heard inside the apex or at the lower end of sternum and is loud in inspiration.

(4) Radiography reveals right atrial dilatation but the lungs are frequently clear.

Diagnosis :

Careful observation of the venous pulse (jugular veins) is the key to diagnosis in tricuspid valve disease. Tricuspid incompetence is often overlooked because of the dominant signs of organic heart disease. Tricuspid stenosis is relatively rare. It should be considered

only in chronic rheumatic heart disease, when there are signs of right heart failure, recurrent ascites and hepatic enlargement. If the heart rhythm is regular, large atrial waves in the neck veins and presystolic hepatic pulsation are diagnostic signs.

Prognosis :

The prognosis of the functional tricuspid incompetence is essentially that of the causal disease. In organic tricuspid disease it largely depends on the degree of associated chronic mitral valvulitis and its effect on the whole heart.

PULMONARY VALVE DISEASE OF THE HEART

Pulmonary Stenosis :

This is almost always congenital in origin and may occur as an isolated lesion or in association with ventricular septal defect, as part of the tetralogy of Fallot. The characteristic features are a loud systolic murmur and thrill and right ventricular hypertrophy. A pulmonary systolic murmur from high blood flow across a normal wave is frequently audible in children, in pregnancy and hyperkinetic states, such as, anaemia, or thyrotoxicosis or with a left-to-right shunt particularly between the atria. It can be distinguished from that of pulmonary stenosis by the softness of the murmur and the absence of right ventricular hypertrophy.

Pulmonary Regurgitation :

This is usually functional in origin from pulmonary hypertension, *e.g.* in mitral stenosis. An early diastolic murmur can be heard to the left of the upper sternum. Dilatation of the pulmonary artery and hypertrophy of the right ventricle are associated. Most diastolic murmurs heard in this area originate at the aortic valve and can often be distinguished by the presence of other signs of aortic regurgitation.

Treatment of Valvular Affections :

General : (1) Patients, in whom the symptoms of congestion of the brain or the chest are present, ought not eat much animal

food and sodium salt, must avoid all sorts of stimulants, especially coffee and spices; mental excitement and depression are harmful, and higher or too low a temperature should be avoided.

(2) Patients, in whom debility and anaemia prevail, ought to eat animal food, and must not over-exert themselves, but have all the fresh and pure air they can get.

Curative :

The treatment of all these valvular affections has to be adapted to each single case. It is not the diseased valve, which points to a particular remedy, but the individual symptoms by which the whole morbid process manifests itself. Amongst the most important remedies, used in these complaints, we find the following :

(1) **Calc. Carb.** Trembling pulsation of heart, worse after eating at night, with anguish ; menses too early and too profuse.

(2) **Ferrum.** Chlorotic symptoms, congestion of heart, spitting of blood, palpitation, better from slowly moving about.

(3) **Kali Iodide.** Darting pain in the region of heart, when walking, after mercurial poisoning; after repeated attacks of the inflammation of heart. *Kali Iodide* has, like *Lachesis*, smothering sensation about the heart, waking him out of sleep and compelling him to get out of bed.

(4) **Natrum mur.** Irregularly intermittent pulse ; fluttering of heart with weak, faint feeling, necessity to lie down ; coldness of hands and feet ; numbness of hands, better from rubbing ; cutting pain in urethra after 'urination', scanty menses.

(5) **Phosphorus.** Congestion of lungs ; tightness across chest and tight cough ; spitting of blood ; palpitation worse after eating, or any mental emotion. Yellow spots on the chest ; painless diarrhoea. *Phosphorus* is useful, in case of venous congestion, and when the right side of heart is affected.

(6) **Rhus Tox** Palpitation worse during rest ; pain from the region of heart into the left arm with numbness and rheumatism

(7) **Spongia.** Violent palpitation, awakens after midnight with a sense of suffocation ; loud cough, great alarm, agitation, anxiety, and difficult respiration, violent gasping respiration ; pain in heart.

VI—CONGENITAL HEART DISEASE

Etiology :

(1) Maternal rubella in early pregnancy has been clearly shown to cause congenital defects. Possibly 4% of all cases of congenital heart disease, especially ventricular septal defect and patent ductus arteriosus, are due to rubella.

(2) Other maternal virus infections and possibly metabolic disorders at this critical stage in pregnancy may cause failures in foetal development.

(3) Hereditary factors, no doubt, operate on some forms of congenital heart disease, but their importance has not been determined so far.

(4) Some heart defects occur in association with other defects, such as, Marfan's syndrome, a disease of cardiovascular system, which is considered to have a genetic basis.

Classification :

The following classification is based on the presence or absence of an abnormal communication (a shunt) between the great vessels or between the two sides of the heart.

When there is no communication, anomalies may affect either the right or left heart (rarely both) and do not usually result in central cyanosis. When there is a communication between the two circulations, the direction of shunting is the most important factor in determining the clinical features of the disorder.

Congenital disorders can thus be divided into the following groups :

GROUP—I

Anomalies without an abnormal communication between the right and left sides of the heart :

- A, affecting the left heart and aorta,
- B, affecting the right heart and pulmonary artery, and
- C of a general nature.

GROUP—II

Anomalies with an abnormal communication and having a shunt :

- A, from the left to the right side (acyanotic), and
- B from the right to the left side (cyanotic).

ANOMALIES OF GROUP—I (A)

(i) **Aortic Stenosis.** Congenital aortic stenosis is usually 'valvar' and often due to fusion of commissures (union of two parts) between the bicuspid valves. Calcification of the valves is usual after middle life. The signs are the same as in acquired aortic stenosis (see aortic stenosis under 'Valvular Disease'). The hypertrophy of left ventricle is sometimes significant and may be seen in the cardiogram.

(ii) **Co-arctation of the Aorta.** Coarctation of the aorta is its constriction or narrowing at the junction of the arch and descending aorta. The constriction or narrowing varies in degree and may be proximal, opposite or distal to ductus arteriosus, which may be patent (closed). The left subclavian junction usually lies just before the constriction, but may be incorporated in it. The importance of coarctation of the aorta lies in its association with significant arterial hypertension and with other arterial lesions, such as berry aneurism in cerebral arteries.

Diagnostic Features of Coarctation :

(1) The essential feature is the high pressure in the upper part of the body with a lower pressure, and delayed or arterial pulsation in the arteries of the legs. If the femoral pulses are always felt in the patients with high blood pressure, unexplained systolic murmurs, or unexplained aortic incompetence, the diagnosis should not be missed.

(2) Other physical signs include an excessive arterial pulsation at the base of the neck, visible or palpable pulsation of collateral vessels especially around the scapulae.

(3) On auscultation there is an ejection systolic murmur over the upper sternum and this may be heard well over the dorsal spine.

(4) An ejection click, associated with dilatation of the aorta, preceding the murmur is common.

(5) The electro-cardiogram is often normal, but left ventricular preponderance due to hypertension is usual in adults. On X-Ray, rib notching, elongation and duplication of aortic knuckle, dilatation of the aorta and slight enlargement of left ventricle are common.

Prognosis :

Many patients live a normal span of life. Death is usually due to heart failure or rupture of an artery, bacterial endocarditis or cerebral haemorrhage.

Treatment :

This is rather a surgical case.

ANOMALIES OF GROUP I (B)

Pulmonary stenosis (with normal aortic root)

Etiology :

The majority of patients with this common form of congenital heart disease have pure valvular stenosis. Both sexes are equally affected. When the obstruction is mild, the pulmonary artery pressure and flow is normal as a result of a slight rise of right ventricular pressure. But when the obstruction is severe, the right ventricular pressure may rise to 150 mm. of Hg. or more and the cardiac output and pulmonary pressure is low as a result of great right ventricular hypertrophy and secondary right atrial hypertrophy.

Clinical Features :

(1) These depend on the severity of the stenosis. Angina and syncope on effort with severe dyspnoea may occur in severe cases (mild cases with pressure of 75 mm. Hg. have no symptoms).

(2) An ejection systolic murmur loudest over the pulmonary artery area and rarely preceded by a click is common to all forms.

(3) The pulmonary second sound is variably delayed and soft.

(4) A right atrial gallop is audible in the more severe cases.

(5) Peripheral cyanosis is apparent, when cardiac output is low

(6) On X-Ray, there is dilatation of pulmonary artery and vascular markings in the lungs are greatly reduced.

Diagnosis :

This can only be established by full haemodynamic investigation and angiocardiology, as clinical features sometimes resemble those of Fallot's tetralogy and atrial septal defect with pulmonary stenosis.

Treatment :

Surgical operation has little risk and may provide better results.

ANOMALIES OF GROUP I (C)

Of the abnormalities of a general nature, isolated dextrocardia is unimportant ; corrected transposition may cause serious mitral incompetence. The inherited myopathies, such as, Friedreich's disease are considered elsewhere (see chapter X) and so is congenital heart block.

GROUP II

Congenital heart disease with abnormal communication between the right and left sides of the heart may be divided into (a) acyanotic, and (b) cyanotic groups. *Acyanotic cases* with left to right shunt account for about 50% of congenital cases, while those with right to left shunt account for about 20% of cases. Fallot's tetralogy is the commonest cyanotic form surviving up to adult life.

ANOMALIES OF GROUP II (A)**(i) Atrial Septal Defect (A.S.D.)****Etiology :**

A small patent foramen ovale is of no significance. Normally a valve-like membrane prevents any flow of blood between the two chambers. Large inter-atrial septal defects are of clinical importance. They are more common in females. Since the pressure in the left atrium is normally higher than that in the right atrium, the shunt will be from left to right, so there is a gradual enlargement of the right side of the heart and of the pulmonary artery and its main branches. In time, the pressure in the right side of the heart may increase, until the shunt is reversed.

Clinical Features :

(1) There may be no symptoms for many years through adolescence and early adult life,

(2) Cyanosis and later cardiac failure may develop in time,

(3) Dyspnoea tends to develop gradually or suddenly with the onset of atrial fibrillation,

(4) Palpitation from hyperkinetic heart, extra systoles or paroxysmal tachycardia are common, and

(5) Bronchitis is prone to occur in older patients.

The physical signs depend mainly on the magnitude of the shunt. Patients with A.S.D. tend to be rather tall and thin.

(1) A small arterial pulse suggests the deviation of arterial blood to the pulmonary circulation.

(2) The jugular venous pressure is slightly raised.

(3) An increased pulsation over the pulmonary artery and at the left sternal edge and praecordium may be seen or palpated in most cases.

(4) On auscultation, a midsystolic murmur over the pulmonary artery is usual and this is almost invariably followed by wide separation of the second sounds which remain fixed on inspiration or expiration.

(5) A diastolic murmur (heard best on inspiration and 4th left intercostal space) occurs in cases with large shunts.

(6) A systolic thrill over the pulmonary artery usually indicates corresponding pulmonary stenosis.

(7) On X-Ray, the most striking features are the large pulmonary arteries ; the right atrium is usually predominant and occasionally anomalous pulmonary veins may be seen entering the right atrium or superior vena cava

(8) The electrocardiogram shows partial or complete right bundle branch block in nearly all cases.

Diagnosis :

The diagnosis may be proved by cardiac catheterisation when highly oxygenated blood may be obtained from the right atrium and the defect crossed, where samples of blood from the left heart may be obtained and found to be normally saturated.

Prognosis :

Uncomplicated cases of A.S.D. may live to middle life, but dyspnoea, increasing gradually, thereafter, causes a distinct deterioration.

(ii) Ventricular Septal Defect : (VSD)

Ventricular septal defects in the membranous or the muscular parts vary in size. The small ones produce no disability and are compatible with a normal life. Larger defects may cause heart failure at any age, commonly in infancy and early adult life.

Etiology :

The degree of shunt depends on the size of the defect and resistance to increased flow in the right ventricle and pulmonary vasculature. The extra blood ejected from the right ventricle to the lungs is received by both the left atrium and left ventricle. Hence all chambers except the right atrium perform extra work.

Clinical Features :

(1) The pulse is small, and jugular venous pressure is normal. Increased praecordial and apical pulsation is usual due to the biven-tricular volume load.

(2) On auscultation, there is usually a loud pansystolic murmur in the mid-praecordium, and in some cases with a large shunt there is a functional mitral diastolic murmur.

(3) The second sounds are normal, but the second component (pulmonary) is loud, when there is pulmonary hypertension.

(4) X-Ray demonstrates enlargement of the left ventricle and pulmonary plethora.

(5) The electrocardiogram shows evidence of right ventricular hypertrophy, when there is pulmonary hypertension.

Diagnosis :

It may be confirmed by cardiac catheterisation.

Complications :

The most important complications are :

- (1) development of pulmonary hypertension, and
- (2) bacterial endocarditis.

Treatment :

Patients with a small shunt should lead a normal life without much treatment. But those with large shunts are advised to have surgical repair.

(iii) Patent Ductus Arterious (P.D.A)

Etiology :

This congenital heart disease is due to the persistence of a foetal channel between the aorta and the main pulmonary artery. Perhaps the most readily recognised acyanotic congenital heart disease, this condition is not as common as 'A.V.D.' but more so than V.S.L.

Clinical Features :

(1) Mild to moderate shunts through the ductus cause no symptoms.

(2) When there are large shunts, dyspnoea, bronchitis, and palpitation are common as in septal defects.

(3) The apex beat is of a left ventricular type and hyperkinetic.

(4) The pulse is collapsing as in aortic reflux.

(5) On auscultation, there is a continuous murmur, loudest in the first or second left intercostal space.

(6) As in V.S.D. there is a functional mitral diastolic murmur in severe cases.

(7) X-rays show a degree of pulmonary plethora and an enlarged left ventricle and the first part of aorta.

(8) The electrocardiogram shows in mild cases normalcy of left ventricle though there is some evidence of right ventricle hypertrophy, when there is pulmonary hypertension.

Diagnosis :

It can be made through cardiac catheterisation and angiocardiology.

Prognosis :

The prognosis depends, as in other left to right shunts, mainly on the size of the shunt. Death may occur in infancy from heart failure, but this is rare in childhood and adult life.

Complications :

Pulmonary hypertension and bacterial endocarditis are important complications.

Treatment :

The condition can be cured by operation, if carried out in childhood.

ANOMALIES OF GROUP II (B)

(Cyanotic cases—right to left shunt)

These cases are detected when 'arterial saturation of haemoglobin' falls below 85%. Compensatory polycythaemia heightens the appearance of cyanosis. Clubbing of fingers and toes is usual and may reach up to a remarkable degree in those cyanotic conditions compatible with survival to adult life.

(i) **Fallot's Tetralogy :**

The essential four anatomical features comprising this cyanotic condition are *Pulmonary stenosis*, a *high ventricular defect*, an overriding aorta and right ventricular hypertrophy. The stenosis is at the infundibulum (a funnel-shaped passage) and 'right ventricular' in half of the cases, at the pulmonary valve in a third, and at both sites in the remainder. In the most severe cases the aorta may arise almost entirely over the right ventricle. Malformations of the aortic arch (right-sided) are commonly present in at least 25% of cases.

Clinical Features :

- (1) Cyanosis is present from the first few months of life.
- (2) Squatting is a common attitude after effort.
- (3) Dyspnoea becomes a serious problem in more serious cases.
- (4) Right ventricular hypertrophy sometimes causes a moderate increase in pulsation at the left sternal edge, but this is not a conspicuous sign.
- (5) There is always a systolic murmur over the right ventricular outflow tract, and this is often loud enough to cause a thrill. The second heart sound is single and clearly arises from aortic valve closure.
- (6) The electrocardiogram shows prominent right atrial P waves in some cases and some degree of right ventricular preponderance is usual.

Diagnosis :

The diagnosis may be made with confidence by clinical features and confirmed by angiocardiography or by cardiac catheterisation.

Differential diagnosis is made from pulmonary stenosis with right to left shunt at atrial level by noting that in this condition there is greater load on the right ventricle and right atrium, and thus there is a right ventricular heave on the electrocardiogram and large "a" waves are visible in the jugular venous pulse.

Prognosis :

It is difficult to generalise about prognosis, because the outlook depends on the severity of the defect and the success of surgical treatment.

Treatment :

There is no other means of correcting the defect except by surgery.

(ii) Pulmonary Atresia :

This condition resembles the tetralogy of Fallot. Life is sustained by collateral circulation of vessels from the aorta and small arteries in the lungs. These inter-communication channels (anastomoses) are responsible for the continuous murmur which is a characteristic and a distinguishing sign from the tetralogy of Fallot.

(iii) Tricuspid Atresia :

In this condition, systemic venous blood reaches the left heart through an atrial septum. The right ventricle is rudimentary. These patients are cyanosed from birth. The most important diagnostic feature is the presence of left axis deviation and left ventricular dominance in the electrocardiogram.

CYANOTIC HEART DISEASE WITH PULMONARY HYPERTENSION

Eisenmenger Syndrome :

This term is used to describe the clinical picture of pulmonary hypertension with reversed shunt, and Eisenmenger's complex is used, when the site of the reversed shunt is at ventricular level. Cyanosis is usual, but when the shunt is through the patent ductus, cyanosis may be confined to the lower extremities. High pulmonary resistance seems to be established at birth or very early in life in most cases of V.S.D. or P.D.A.

Dyspnoea, pain or syncope on effort are important and serious symptoms. Haemoptysis is common, especially in V.S.D. The signs, apart from those of cyanosis, are essentially those of severe hypertension ; left parasternal pulsation, an ejection click, a loud pulmonary second sound and a murmur are common features.

The electrocardiogram always shows some evidence of right ventricular dominance, but there may be some evidence of left ventricular preponderance in V.S.D. and P.D.A. X-rays show a large pulmonary artery and peripheral oligæmia (diminished total quantity of blood). Larger heart shadows occur in pulmonary hypertension with A.S.D. than in other forms. Sometimes calcification in the region of P.D.A. may be observed and is diagnostic.

The *prognosis* is fair. Many live longer than anticipated from the degree of their disability and their appearance. There is no remedial treatment.

VII—DISEASES OF THE MYOCARDIUM (HEART MUSCLE) CARDIOMYOPATHY

Definition :

This section deals with those conditions in which the diseased process is mainly confined to the myocardium, the heart muscle. The term cardiomyopathy is used here to describe the whole group of primary myocardial diseases. Most of the pathological processes are represented. Sometimes the primary cardiomyopathies are associated with pericardial and endocardial involvement.

Etiology :

Cardiomyopathy may occur as an isolated primary myocardial disorder in which the etiology is obscure (primary cardiomyopathy) or in association with infections, infiltrative diseases or deficiency state (secondary cardiomyopathy).

Acute cardiomyopathy usually occurs secondarily as a complication of infection, the majority being due to the toxic effects of disorders, such as, diphtheria, pneumonia, typhoid fever and meningitis. They may also occur as protozoal infections and may follow virus diseases, such as influenza, poliomyelitis and coxsackie infections.

Cardiomyopathy may occur as a familial diseases in which several members are affected.

In infancy and early childhood cardiomyopathy may be associated with endocardial or with glycogen storage disease. In later life, it may be due to the involvement of the myocardium sarcoidosis, amyloidosis and connective tissue disorders. It may also be associated with pregnancy and chronic alcoholism.

In underdeveloped countries, it may be a nutritional disorder due to deficiency of vitamins, proteins etc. in diet. The cardiac failure of beri-beri is due to thiamine deficiency. In some parts of the world a type of cardiomyopathy frequently seen is endomyocardial fibrosis as an extensive fibrosis of the endocardium.

Clinical Features :

(1) Non-coronary myocardial disease presents most commonly as heart failure.

(2) Dyspnoea on effort, although an attack of paroxysmal dyspnoea may be the first symptom of left ventricular myopathy developing slowly, insidiously.

(3) A small pulse, low systolic and a raised diastolic pressure and signs of peripheral vaso-constriction all point to low cardiac output and heart failure.

(4) The jugular venous pressure is elevated.

(5) There may be oedema and ascites.

(6) Pain from hepatic congestion is common and is sometimes connected with a cardiac pain. All these symptoms point to *congestive cardiomyopathy*.

(7) Physical signs resemble those of *constrictive pericarditis*, when heart is not greatly dilated inspite of the raised venous pressure.

(8) In a large group of primary cardiomyopathy, the problem concerns unexplained general or localised hypertrophy of the myocardium referred to as hypertrophic cardiomyopathy, there may be no symptoms in this group or may have dyspnoea, true cardiac pain, syncope or pathological fatigue.

(9) Palpitation from arrhythmia is a common symptom, and may lead to syncopal attacks.

(10) The electrocardiogram always shows myocardial disease. T and Q waves abnormalities are common. Chest X-rays reveal cardiac enlargement ; the aorta is often small.

Diagnosis :

The diagnosis of cardiomyopathy should only be considered after other forms of heart disease have been excluded, *e.g.* rheumatic fever and hypertensive, ischaemic, thyroid or congenital disease.

Note :

There are special types of cardiomyopathy also, *e.g.* :

- (1) Congenital or familial cardiomyopathy.
- (2) Inflammatory cardiomyopathy.
- (3) Nutritional cardiomyopathy.
- (4) Metabolic and endocrinal cardiomyopathy.

It is possible to recognise or diagnose each of these forms from a comprehensive study of the past history, the family history the nutritional history, and a full clinical examination of all systems and laboratory investigations.

Special Indications of each of the above Cardiopathies :

No. (1) Palpitation due to arrhythmia and syncopal attacks are common. The striking feature of this form is the tendency to sudden death. There is excessive fibrosis and hypertrophy.

No. (2) This disease may be revealed by the pain of associated pericarditis, severe dyspnoea from heart failure, or an arrhythmia. In mild cases, recovery may be complete while in cases of accompanying hypertrophy, there may be heart failure in later life.

No. (3) In this, deprivation of food is associated with a disturbed balance of foods over a long period of time, myocardial disease may result, as in beri beri. Besides, the patient of this type becomes vulnerable to infection.

No. (4) Here certain metabolic and endocrine disorders affect the heart, such as, amyloidosis, myxoedema, hyperthyroidism and acromegaly. In most of these diseases, cardiac hypertrophy and heart failure may dominate the clinical picture. Palpitation, dyspnoea and weakness are common symptoms in all these disorders. Atrial fibrillation is common after 45 years of age.

Treatment :

(1) **Aconite** is indicated in myocarditis, when the inflammation just sets in with fever of intense mental anxiety. Other symptoms for its selection are : numbness of the left arm ; tingling in fingers, associated with heart disease ; palpitation and oppression of breathing, worse when walking ; lancinating attacks of severe pain.

(2) **Adonis Vernalis**. A good remedy in feeble heart action, both in myocarditis and fatty degeneration, the leading symptom being previous attack of rheumatism ; dropsy with dyspnoea.

(3) **Arsenic Iodide**. If myocarditis and fatty degeneration is co-existent with respiratory affections, the remedy should be given immediately after food.

(4) **Cactus G.** It controls the inflammatory condition of the heart and strengthens it. Its well-known characteristic symptom

is the sensation, as if the heart were grasped in an iron hand, which grasps and relaxes alternately.

Other symptoms are :

- (i) soreness and constriction in chest,
- (ii) pains shooting in left arm,
- (iii) oedema,
- (iv) and a quick throbbing, tense, hard pulse, which may or may not be intermitting, and
- (v) Cardiac asthma or dyspnoea.

(5) **China Ars.** Early myocardial degeneration with dyspnoea and suffocative periodical attacks, short breath with general weakness and prostration : coldness of extremities, knees and limbs : sensation, as if heart would stop.

(6) **Galanthus Nivalis.** Myocarditis with mitral insufficiency and stenosis, violent palpitation, irregular, uneven rapid pulse, weak heart, systolic murmur at apex, faintness and sinking sensation.

(7) **Veratrum Viride.** An important remedy in all inflammatory affections of heart and its membranes, especially caused by infections. The pulse is abnormal and rapid. In addition, there is intense arterial excitement.

(8) **Rhus Tox.** Myocarditis due to septic conditions with rheumatic hypertrophy calls for this remedy. The cause may be over-exertion, exposure to rain. If due to hurt, *Arnica* is the remedy.

(9) **Phosphorus.** Exceedingly useful in fatty degeneration of heart, when the right heart is mainly affected. This should be followed by Baryta Carb.

(10) **Arsenic.** Useful when the left heart is affected and there is oppression of chest in breathing and more dropsy.

(11) **Cuprum Acet.** and **Phytolacca** are useful remedies for fatty degeneration of heart.

(12) **Vanadium Ox** will strengthen heart's action when there is fatty degeneration of liver and heart with the degeneration of artery walls. It will be found of special advantage, where anaemia,

rheumatism, tuberculosis, or neurasthenia is the exciting cause. It acts on the digestive tract also and makes it strong.

ISCHAEMIC HEART DISEASE

Ischaemic heart disease or Coronary insufficiency includes all conditions which are due to a failure of the Coronary efficiency to meet the demands of the heart muscle, the myocardium. The term is almost synonymous with Coronary heart disease. Most cases of Coronary heart disease are attended with pain, some of short duration and others of long duration. To the first type the term Angina pectoris is used and to the latter, Coronary Thrombosis which is accompanied with myocardial infarction. Other instances of disease are (1) Cardiac failure and (2) various arrhythmias. It may also be noted that ischaemic fibrosis may be found in cases where there have been no relevant symptoms during life.

VIII—ANGINA PECTORIS

Definition :

Angina pectoris is essentially a clinical syndrome of characteristic chest pain produced by increased cardiac work and relieved by rest. The cardiac pain is of a short duration without any damage to the valves or the myocardium.

Etiology :

(1) The underlying cause is occlusive disease of the coronary arteries which is mostly atheroma and associated thrombi. Sometimes syphilitic coronary ostial stenosis and very rarely coronary embolism or congenital anomalies of the coronary vessels are the causes.

(2) Cardiac pain of the type of angina may be caused by *cardiac stenosis* and less commonly by aortic incompetence.

(3) It also occurs in patients with severe pulmonary hypertension and rarely in pulmonary stenosis.

(4) Angina pectoris may be associated with myxoedema, rarely with thyrotoxicosis and frequently with diabetes mellitus, and in these conditions, coronary atheroma is the underlying cause.

Symptoms :**Clinical features :**

(1) Paroxysmal pain, caused by effort and other stimuli, is the cardinal feature of angina pectoris. There is constancy in its pattern.

(2) It is more common on the left than the right side of the chest and tends to spread centrifugally to the arms, neck, jaws and epigastrium, down to the elbow up to fingers.

(3) Ischaemic pain is characterised by constriction, crushing and vice-like or pressing. The pain is steady during attacks and does not stab, prick or shoot.

(4) Unusual effort, fast walking, a recent meal, cold air or worry, prolonged talking, argument or an intense emotional situation may bring on the attack.

(5) In sleep an unpleasant dream or some exciting cause may provoke the trouble in severe and advanced cases. Frequent attacks suggest impending heart failure.

(6) Attacks generally last not more than a few minutes and subside when the provoking stimulus subsides.

(7) The facial expression is often strained and anxious and there may be pallor at the time of the attack.

(8) The pulse rate may change, in some it is increased, and in others it occasionally decreases. The arterial atherosclerosis pressure is generally increased slightly.

(9) There is flushing on the face with sweating.

(10) When angina is due to a disease other than the Coronary arterial atherosclerosis, there are associated symptoms and signs of the underlying disease.

Diagnosis :

It depends largely upon obtaining a characteristic history. Electrocardiogram is often negative at rest but abnormal on exercise and is the only valid test.

Prognosis :

The wide variation in clinical course and the unpredictable occurrence of serious complications render the prognosis uncertain. Many men have continued to live for many years by restricting their activities, and full expectation of life has been achieved.

Treatment :

General : (1) During pain, the patient ought to remain quiet.

(2) Bed-rest after the 1st attack for 4 weeks.

(3) Exertions bringing hurry, diet and drinks to be regulated.

Curative :

(1) **Amyl Nitrate**. Oppressed breathing and constriction of chest about heart ; useful in angina pectoris.

(2) **Glonoine**. Pulsating headache ; must have head high up, pains radiating in all directions ; fulness in the region of heart ; laboured breath.

(3) **Aconite**. A fine heart remedy, when there is numbness in the left arm and tingling in fingers. Mental anxiety ; oppression, restlessness, palpitation are other permanent symptoms.

(4) **Cactus G** is a great remedy for angina pectoris, when there is a great irritation of cardiac nerves.

(5) **Spigelia** has the most beneficial effect in angina pectoris which is a kind of neuralgic pain.

(6) **Crataegus** is very useful, when the heart's action is very feeble and pulse is small and intermittent.

(7) **Arsenic Alb**. A grand remedy in diseases of heart, depending upon constitutional causes of fatty degeneration of blood vessels. Restlessness, oedema, puffiness of eyes, swelling of feet, attacks of suffocation at night on lying down after 12 a.m. are suggestive.

(8) **Lil. Tig** is associated with uterus troubles and there is nervous palpitation. Pain in heart, as if grasped in a vice, which awakens the patient from sleep.

(9) **Naja**. In this remedy, hypotension (low blood pressure) is marked. The pulse is slow. The patient is melancholic and all the symptoms are better from walking or riding in open air. This remedy has good effect in valvular defects of the heart with dry teasing cough.

(10) **Oxalic Acid** is useful in stabbing heart pain, which radiates to the left shoulder in cases of aortic insufficiency.

(11) **Adrenaline**. 2X or 3X is one of the new remedies. It strengthens the heart beat, and prevents haemorrhages ; angina with vertigo, nausea and vomiting and abdominal pains are other symptoms.

MYOCARDIAL INFARCTION

Or

(CORONARY THROMBOSIS)

Definition :

Myocardial infarction is the localised death of the heart tissue due to occlusion or closure of the coronary artery by a clot of blood, then characterised by pain in the precordium, a fall in blood pressure and other manifestations of shock, accompanied with fever and leucocytosis.

The term "coronary thrombosis" is used to denote attacks of cardiac pain of longer duration characterised by a fall in blood pressure and other manifestations of shock, fever and leucocytosis.

Etiology :

The primary disease is nearly always due to coronary atheroma. Usually plugging by thrombosis, haemorrhage or rupture of an arterial abscess is responsible. Arteriosclerosis, the hardening of the artery associated with old age, is the most frequent cause, but in a

few cases, arteritis, due to syphilitic aortic disease, rheumatic fever severe anaemia, or paroxysmal tachycardia may be responsible. Generally 50% of cases are affected by this and the rest by *angina pectoris*. The precipitating causes are those that are applicable to *angina pectoris*. Cardiac infarction is said to be more common in short, obese individuals.

Symptoms :

(1) Appearance of abrupt severe pain which is agonising, sharp, vice-like, tearing, cutting, gripping, burning, crushing or choking. It is at first mild, increasing progressively after 15 to 30 minutes.

(2) The pain radiates to the left, at times both the right and the left arms and right side of the neck. This increases with swallowing.

(3) Sometimes there is restlessness and some patients pace about the room.

(4) The pain is more severe than that in *angina pectoris* and persists at least for half an hour, if not for several hours.

(5) Nausea, vomiting, sweating, and fever—occur after 24 hours.

Signs :

The patient is :

(1) usually restless and pale and perhaps cyanosed,

(2) frequently bathed in cold sweat,

(3) cannot get his breath and feels that he is dying,

(4) the pulse may not be felt at the wrist and may be barely palpable at the neck,

(5) moderate leucocytosis is usual,

(6) fever is common,

(7) heart sounds may be distant or abnormal,

- (8) the systolic pressure falls, and
- (9) anuria occurs, when there is a severe shock.

Differential Diagnosis :

It should be differentiated from *angina pectoris*. There is marked weakness and a greater severity and duration of pain in myocardial infarction than what is observed in *angina pectoris*, and physical examination discloses cold, clammy skin. In *myocardial infarction* the attack usually starts, when the patient is at rest ; pains are of long duration and dyspnoea is accompanied by sweating. Diagnosis is thus made from the nature of the pain, fall of blood pressure, pericarditis, leucocytosis and characteristic changes in the electrocardiogram.

Complications :

These are :

- (1) *thrombosis* of leg veins,
- (2) *myocardial softening*,
- (3) *stiff painful shoulder* and nutritional changes in hands and fingers,
- (4) Rupture of the heart, and
- (5) Pericarditis.

Prognosis :

Cardiac infarction is an unpredictable disease. Patients may survive, if there are no complications within the first four weeks. Sudden death under 40 is not uncommon.

Treatment :

The common remedies are :

- (1) *Amm. carb*,
- (2) *Kali mur*, and
- (3) *Lachesis*.

IX—OTHER HEART DISEASES

SYPHILITIC HEART DISEASE OR SYPHILITIC AORTITIS

Definition :

Syphilis indirectly affects the heart by causing aortitis which is the late manifestation of syphilis. Aortitis is a chronic inflammation of the ascending aorta resulting in dilatation and formation of aneurysms and thickening of the upper edges. Congenital syphilis rarely affects the cardio-vascular system.

The disease is rarely detected under 10 years of age, and not until 30 years after infection. Aortitis occurs in a large proportion of patients with syphilis, treated or otherwise, and in 80% of patients with neurosyphilis.

Clinical Features :

(1) Uncomplicated syphilitic aortitis presents no diagnostic symptoms except a dull aching sub-sternal pain which is constant and localised.

(2) In patients of latent syphilis (tertiary) a loud second sound over the aorta or an aortic systolic murmur in the absence of hypertension suggests the possibility of aortitis.

(3) In all cases of latent syphilis widening or irregularity of aorta may be found by radiological examination before aortitis develops.

(4) Angina pectoris commonly develops in syphilitic aortitis. It is due to stenosis at the origin of the coronary arteries mostly accompanied by aortic incompetence.

(5) Aortic valves are also damaged by aortitis.

(6) There is cardiac pain on effort which is indistinguishable from Angina Pectoris, but it is of longer duration.

(7) Aortic incompetence due to aortitis is more common in males. There are no symptoms until dyspnoea indicates early heart failure, or cardiac pain indicates involvement of coronary ostia.

(8) A mid-systolic murmur is usually present in addition to early diastolic murmur or both are heard best at the aortic or pulmonary region. Cardiac asthma appears early in the disease and thereafter deterioration is relatively rapid, especially when cardiac pain is present.

(9) Aneurysms of the ascending aorta may present a local bulge on the anterior chest wall usually to the right of the sternum. The Aneurysm of the arch of the aorta produces symptoms and signs of pressure on the adjacent structures. They cause differences of pulse pressure in the two arms. Pressure on the trachea produces stridor and cough, and the damage to the recurrent laryngeal nerve causes changes in voice and cough. There may be haemoptysis. The diaphragm may be paralysed.

(10) Aneurysm of the descending aorta may develop without symptoms.

(11) Neurosyphilis is present in 25% of cases.

(12) Angiocardiography can show more clearly the calibre of the lumen and its irregularities.

(13) Electrocardiogram may be normal in syphilitic aortitis but when there is ischaemia, the tracing is always abnormal.

(14) Serological tests are positive in 80% cases.

Diagnosis :

(1) Isolated aortic incompetence in adults over 30 years may be due to syphilis.

(2) Serological tests are always positive in such cases.

(3) Presence of cardiac pain increases the possibility of the presence of syphilis.

(4) The presence of lesions in other valves exclude the presence of syphilis.

(5) The differential diagnosis from *mediastinal tumours* and *bronchial carcinoma* can be settled by angio-cardiography.

(6) The diagnosis of aneurysms is essentially radiological.

Prognosis :

Some pursue a rapid downhill course while others live long and die of another malady.

Treatment :

The remedies suggested are :

- (1) Adrenalin 2X (pain in heart).
- (2) Antim Ars. 3X (Cardiac weakness).
- (3) Arsenic iodide 3X (Chronic aortitis).

(4) Cactus G. 30 (Tobacco heart, constriction, enlargement of ventricle).

- (5) Natrum iodide 2X (Tertiary Syphilis).

Note :

Aortitis which is caused by syphilis, has so far been included under diseases of the endocardium, but the latest trend is to call it a 'syphilitic heart disease' and enlist it under 'Ischaemic diseases' as it causes ischaemia and angina also.

X—HYPERTENSIVE HEART DISEASES

Cardiac infarction or damage resulting from systemic hypertension and Cardio-vascular hypertrophy is most common. The trouble is mostly abrupt and insidious and so the patient suffering from arterial or pulmonary hypertension needs to be carefully watched and treated by every physician. The pulmonary hypertension has been dealt with in this section, while arterial hypertension is described under "Diseases of the blood vessels".

PULMONARY HYPERTENSION**Definition :**

A raised pressure in the pulmonary arterial circulation above the normal level of 20-30/10-15 mm. Hg. caused by an increase in resistance or of blood flow or both is known as pulmonary hypertension.

Etiology :

An increase in pulmonary vascular resistance is due to three main causes :

- (1) Organic obstruction in the vascular bed.
- (2) A sustained elevation of pulmonary venous pressure usually from disease in the left heart, and
- (3) Pulmonary vaso-constriction.

Clinical Features :

- (1) Dyspnoea on effort is usual.
- (2) Angina or syncope on effort may occur in more severe forms.
- (3) Right ventricular hypertrophy and pulmonary valve closure may be detectable and palpable respectively.
- (4) On auscultation, the pulmonary second sound is loud.
- (5) An ejection click is present, when the pulmonary artery is very large.

Diagnosis :

Pulmonary hypertension may be inferred, if there is accentuation of the pulmonary second sound, enlargement of pulmonary artery and right ventricular hypertrophy. In some cases it is necessary to prove the existence or otherwise of pulmonary hypertension by cardiac catheterisation before deciding on the surgical treatment of heart disease.

PULMONARY EMBOLISM AND INFARCTION**Definition :**

Pulmonary embolism occurs when a portion of the blood clot in a systemic vein or in the right side of the heart is discharged into circulation and lodges in the main pulmonary artery or its branches. *Pulmonary infarction* is the pathological lesion which often develops, when a pulmonary artery is obstructed, either by embolism or local thrombosis. Emboli may be large or small, single or multiple and

may occur in patients with heart disease or in those with normal hearts. It is also defined as haemorrhagic necrosis of the lung, distal to occlusion of the pulmonary artery. *Massive embolism* may result in sudden death.

Etiology :

(1) The most common cause of pulmonary embolism is thrombosis in the deep veins of the legs (venous thrombosis).

(2) Prolonged bed rest predisposes to the formation of thrombi particularly in the leg veins.

(3) Pulmonary embolism may occur after operations, especially pelvic and abdominal fractures and other serious injuries.

(4) It may follow childbirth and may be associated with the use of contraceptive pills.

(5) Chronic congestive heart failure may be complicated by pulmonary embolism.

(6) It may occur in patients having carcinoma, particularly of the stomach, and with a variety of blood disorders.

Conditions required for infarction to develop are not known but an important factor is an elevated, pulmonary venous pressure, *e.g.* with mitral stenosis or left ventricular failure. The commonest form of occlusion leading to infarction is thrombotic, usually emboli from a peripheral venous source or the right heart, *e.g.* right atrium in atrial fibrillation. Sometimes the thrombosis is local, occurring *in situ* in a branch of the artery in which atheroma has developed as a result of long-standing pulmonary disease *e.g.* pulmonary hypertension. A pulmonary infarct consists of a wedge of haemorrhagic necrotic lung, one side of which usually lies along the pleura. Predisposing causes to infarction are :

(1) immobilisation,

(2) surgery,

(3) pregnancy,

(4) the contraceptive pills, and

(5) malignancy and evidence of the left heart disease or pulmonary hypertension.

Clinical features :

(a) *Pulmonary embolism.* The onset of massive pulmonary embolism is sudden. In some patients, however, smaller emboli precede the massive embolism and in these the symptoms may be present, e.g. :

(1) Chest pain similar to that of cardiac infarction.

(2) Acute dyspnoea or tachypnoea.

(3) Syncope.

(4) Dizziness, faintness and restlessness.

(5) Mental apathy or convulsions.

(6) Occasionally there is haemoptysis and in some cases palpitation from an associated paroxysmal arrhythmia.

(7) There are signs of circulatory failure and shock with a rapid, thready pulse, low blood pressure, pallor, coldness and sweating.

(8) In some cases cyanosis may be present.

(9) The pulmonary second sound may be accentuated and triple rhythm may develop; these signs are due to a combination of right ventricular failure and low cardiac output.

Pulmonary Infarction :

(1) The onset is sudden with either pleuritic pain or haemoptysis as the initial symptom. The pain is often severe and haemoptysis may be repeated.

(2) Tachycardia, dyspnoea and cyanosis.

(3) Pyrexia is usually present, but the temperature is sometimes sub normal.

(4) Leucocytosis may be present, even in the absence of infection.

Diagnosis :

The collapse, the praecordial pain, dyspnoea, tachycardia and cyanosis, confined to bed after an operation, delivery or medical

illness should suggest the diagnosis of massive embolus. The diagnosis becomes more probable, if signs of thrombophlebitis are present in the calf muscles. If added to these are signs of right heart strain with elevation of jugular venous pressure and characteristic cardiographic changes, then the diagnosis of acute pulmonary heart disease is established.

The differential diagnosis from cardiac infarction is established by the development of localising in the lung. Other conditions, such as, pneumonia, pleurisy and post-operative shock must be excluded.

Treatment :

Remedies suggested are :

(1) Bothrops.

(2) Lachesis.

(3) Kali Mur. in repeated doses. The first two may be given in 200 potency.

PULMONARY CONGESTION AND OEDEMA

Definition :

Excess of blood in the pulmonary area is termed *pulmonary congestion*, while abnormal infiltration of pulmonary tissues with fluid is called "Pulmonary oedema".

Etiology :

Pulmonary congestion occurs whenever there is :

(1) Failure of the chambers on the left side of the heart, *i.e.* in mitral valvular disease and in failure of left ventricle from aortic valvular disease, hypertension or ischaemic heart disease,

(2) Acute pulmonary infections, such as. pneumonia, and

(3) Hypostatic congestion (congestion due to impaired circulation); this occurs in old men and women who are debilitated and confined to bed. A low grade non-specific pneumonia may develop in the congested lungs.

Pulmonary Oedema :**Etiology :**

Pulmonary oedema may occur :

(1) As a result of long-standing pulmonary congestion in patients with mitral stenosis or conditions prone to left ventricular failure.

(2) Overloading of the circulation by intravenous infusion.

(3) A virulent acute respiratory infection *e.g.* influenza.

(4) The inhalation of an irritant liquid, such as, paraffin oil, chlorine or phosgene.

(5) Acute proliferative glomerulo-nephritis.

(6) Thoracic surgical operations.

Clinical Features :

(1) Intense dyspnoea is usually the first symptom.

(2) This is followed by cyanosis, cough with the production of large amounts of frothy sputum which may be white or pink and even blood-stained.

(3) The physical signs consist of medium, bubbling crepitations, audible all over the chest; the main bronchi produces a characteristic rattling sound audible without the aid of the stethoscope coupled with secretions in the larynx and trachea.

(4) Chronic oedema is almost always of cardiac origin.

(5) The chest radiograph may show shadowing in hilar regions, and thin horizontal lines at the lung bases.

Treatment :

The disease is readily confused with chronic bronchitis. Therefore careful evaluation of cardio vascular system is necessary.

(1) **Antim Tart.** Oedema and impending paralysis of lungs. Other remedies are :

(2) Ammonium carb.

(3) Apis.

- (4) Arsenicum.
- (5) Kali carb.
- (6) Phosphorus.
- (7) Sanguinaria.

CHRONIC PULMONARY HEART DISEASE

(Chronic Cor Pulmonale)

Definition :

The terms "Pulmonary heart disease" may be defined as right-sided heart disease, secondary to the disease of the lungs or pulmonary vessels. Cor Pulmonale means heart disease 'following that of the lungs.'

Etiology :

Chronic bronchitis is largely a disease of the middle-aged, hence heart disease due to chronic bronchitis and emphysema (chronic airway obstruction) shows similar sex and age incidence. Sufferers from *Chronic Cor Pulmonale* are almost invariably inveterate smokers and the highest incidence of the disease is amongst industrial town dwellers.

Symptoms :

(1) The symptoms and signs of pulmonary heart disease are those attributed to the underlying pulmonary disease together with those of congestive cardiac failure.

(2) The onset is usually insidious, but may apparently come on suddenly following an acute respiratory infection.

(3) Cyanosis of a moderate degree is common in emphysema, but if it is severe, cardiac failure is usually present.

(4) Sinus rhythm is common, but if there is co-existing atrial fibrillation, coronary disease should be suspected.

(5) The earliest radiographic sign is enlargement of the pulmonary artery, and its two main branches followed by the enlargement of the right ventricle.

(6) If severe hypertension is present, the electrocardiogram will show the pattern of right ventricular hypertrophy.

Diagnosis :

The diagnosis of chronic pulmonary heart disease rests on the recognition of right ventricular enlargement with or without cardiac failure in the presence of emphysema and bronchitis. When frank congestive heart failure with a rise in jugular venous pressure, hepatomegaly, oedema and triple rhythm have developed, the diagnosis is clear.

Treatment :

It should be conducted to the evidence of prominent symptoms of the heart and pulmonary disease.

CIRCULATORY OR CARDIAC FAILURE**Definition and Classification :**

In circulatory failure the organs and tissues of the body do not receive an adequate supply of blood due to Cardiac decompensation :

There are two varieties of circulatory failure :

(i) Cardiac or central, (ii) Peripheral or vascular. In some cases, both forms of circulatory failure are present as in some acute and infectious diseases such as diphtheria, pneumonia and coronary occlusion.

(i) **Cardiac or heart failure.** In this, the fault lies in heart itself. Consequently, the organ fails to propel the amount of blood which it has received from the great veins and thus venous stasis results.

The heart maintains two types of circulation. Systemic (pertaining to the whole body) and pulmonary, so that the two varieties of heart failure may be considered affecting the left or the right side of the heart respectively.

Mechanism :

According to the back-pressure theory, the chronic venous congestion in the systemic circulation is indicative of right-ventri-

cular failure, and congestion in the pulmonary circulation signifies left ventricular failure.

Recent clinical, radiological and experimental evidence, including that on the chemistry of the blood, together with postmortem findings, strongly suggest that the forward-pressure theory does not fully explain the phenomenon of cardiac failure. It is probable that, in cardiac failure, both deficiency in output and back-pressure are involved.

Left-sided Failure :

It occurs more frequently. Its causes are hypertension, aortic valvular disease, especially incompetence ; coronary artery disease ; chronic myocardial disease.

Symptoms & Signs :

These include dyspnoea, orthopnoea (inability to breathe in a recumbent position), cough, which may be nocturnal, cardiac asthma (paroxysmal nocturnal cardiac dyspnoea) ; acute pulmonary oedema, cheyne-stokes respiration, pulmonary venous congestion, confined to base, or wide-spread accentuation of the second sound in the pulmonary area, or reduplication of the second sound at the base.

If there is hydrothorax, it is usually left-sided. In addition there may be triple rhythm, presystolic in time, or pulsus alternans (A regular pulse with alternate beats of weak and strong pulse.) The rhythm is usually normal, but extra-systoles, or very occasionally auricular fibrillation, may be present. Unless there is right-sided failure also, the systemic venous pressure is not increased.

Right-sided heart failure :

It may be primary or secondary. The primary is due to chronic mitral disease, auricular fibrillation, congenital heart disease, particularly pulmonary stenosis and chronic lung disease. The secondary is due to left-sided heart failure.

Symptoms and Signs :

These are chiefly manifestations of chronic venous congestion, either systemic, or portal, or both. They include visible distention

or even pulsation of jugular veins, cyanosis, oedema of dependent parts of the body, enlargement of liver, which may be tender, sometimes ascites, diminished output of urine, and an increase in the systemic venous pressure. If there is hydrothorax, it is generally right-sided. Gastric congestion may lead to poor appetite, impaired digestion and even nausea and vomiting. Cardiac signs are usually those of the disease, causing heart failure, but right ventricular triple rhythm may be present.

(ii) **Peripheral circulatory failure.** It is characterised by sudden decrease in circulating blood volume associated with reduction in venous return to heart and cardiac output with generalised tissue anoxia.

Its causes are :

(1) Change of posture or prolonged standing (due to postural orthostatic hypotension.)

(2) Vasovagal attacks (simple syncope).

(3) Carotid sinus syncope.

(4) Circulatory collapse and shock.

In all these conditions there is a significant preliminary fall in blood pressure.

(1) The first cause is more frequent in elderly or the middle aged. The pulse becomes feeble or imperceptible.

(2) Vaso-vagal attacks are more common in younger persons, whose health is unsatisfactory, and who are emotionally unstable. These may be brought about by emotion, such as, sight of blood, or a prick of a needle, or sudden fright, or in heated, stuffy atmosphere, very severe pain, such as, renal colic, or fatigue. They rarely occur, when the patient is lying down. As a result of increased vaso-vagal tone, there is a fall in blood pressure due to vaso-dilatation in the splenic area, and a diminution in heart rate. There is usually giddiness preceding the attack.

The *clinical picture of Vaso-vagal attack* is as follows :

There is pallor, sometimes a little cyanosis, profuse sweating, respiration becomes slow, and may almost cease ; dilatation of pupils, nausea and vomiting, loss of consciousness and occasionally slight convulsions. The attacks generally last up to 10 minutes or so. It usually takes some hours to recover completely ; there is generally a feeling of tiredness, weakness and occasionally headache.

(3) *Carotid Sinus syncope* is rare and is usually due to functional hypersensitivity of carotid sinus, or rarely due to pressure of a tumour or gland causing increased irritability of the sinus. The symptoms resemble those of vaso-vagal attacks.

(4) *Circulatory collapse and shock* may occur after severe injuries, or burns, or operations, or profuse loss of blood, or in severe pain like renal or biliary colic, or in rupture of abdominal or thoracic viscera, acute or infectious diseases, such as, diphtheria and pneumonia, or coronary occlusion, or severe diarrhoea, or continued vomiting.

The *Symptoms and signs* are pallor, sometimes cyanosis, coldness of body surface with perspiration. The face may be pinched, eye-balls sunken and expression anxious. There is weakness, giddiness, and actual syncope. Heart rate is usually increased up to 111—120 or more. Pulse is feeble and may be imperceptible. There is a marked fall in systolic and diastolic pressure immediately. Heart sounds, especially the first at the apex, are diminished. The superficial veins are empty.

Treatment :

General : (1) Avoid sudden changes of posture or prolonged standing, when these are responsible for syncope. An abdominal support is sometimes of help as a prophylactic measure.

(2) Fatigue and heated, stuffy atmosphere should be avoided in vaso-vagal attacks.

(3) In circulatory collapse and shocks, lower the patient's head and raise the foot of the bed, one to two feet, and apply a firm broad binder to the abdomen and bandages to the legs. Warm the body and give frequent hot drinks of milk, fruit juice, etc.

(4) In heart failure cases, restrict the salt intake to a minimum and give plenty of rests in bed.

Curative :

Remedies in general for heart failure are :

- (1) Alcohol,
- (2) Caffeine,
- (3) Crataegus,
- (4) Glonoine,
- (5) Digitaline,
- (6) Oxygen Inhalation, and
- (7) Spartium-scoparium (In cheynestokes respiration).

XI CARDIAC ARRHYTHMIAS

(Dysrhythmias)

Definition :

Myocardium or the heart muscle has an inherent rhythmicity, but certain specialised areas of the heart become dominant foci of stimulus formation. The whole myocardium has the capacity to conduct these stimuli and cause excitation of the adjacent muscles. This function is also carried out by specialised tissue bundles. The disorders of the rate and rhythm of impulse formation are called cardiac arrhythmias, and disorders of stimulus conduction over the rest of the heart are called conduction defects.

Anatomy and Physiology :

The cardiac impulse arises in the sino-atrial node which is situated in the right atrial muscle near the entrance of the superior vena cava, and it produces normal heart rhythm, known as "*Sinus rhythm*". The artery to the sino-atrial node arises from a coronary artery, usually the right one, near to origin from the aorta. The rate of impulse formation depends not only on spontaneous rhythmicity, but also on neurogenic and humoral factors (fluids). Sym-

pathetic cardio-accelerator fibres and vagal inhibitory fibres have a dominant influence. The natural rate of impulse formation at the sinus node (70 per min.) is rather higher than the inherent rhythmicity of lower centres. Excitation from the node spreads rather rapidly over the atria in all directions inducing activity of the atrial myocardium which, then, stimulates the atrioventricular node lying in the inter-atrial septum and is also influenced by the autonomic nervous system. Its own slower rhythm (60 per min.) is blocked normally by the higher frequency of the sino-atrial node. Conduction continues at a slower rate through the node and the ventricular muscle is reached by the bundle of *His*; which divides into left and right bundle branches in the upper part of the septum. Each branch lies in the sub-endocardium of the septum and subsequently breaks up into a network of the conducting fibres (Purkinje fibres) which remain in the ventricular sub-endocardium. Excitation of the ventricular muscle appears to spread from the endocardium to the epicardium. The inherent rate of impulse formation of foci in the ventricular muscle is 40 per min., but these are blocked by the higher rate of stimuli from supra-ventricular centres. The arrhythmias may be classified in various ways. The following order, given in Dr. Princes's text book of 1973 is adopted here :

1. **Sinus rhythm** : tachycardia, bradycardia, sinus arrest and phasic arrhythmia.
2. Ectopic beats and ectopic rhythm, atrial, nodal and ventricular.
3. Tachycardias, paroxysmal and otherwise : Paroxysmal tachycardia (atria) ; atrial flutter, atrial fibrillation ; ventricular fibrillation and tachycardia.
4. Disorders of conduction.

SINUS RHYTHM

Sinus Tachycardia. Tachycardia means a fast heart rate, normal resting rate being between 50 and 90 beats per minute. In sinus tachycardia, the increased rate is due to increased rhythmicity of the atrial sinus node, and this is largely due to diminished vagal

tone or sympathetic stimulation. Sinus tachycardia merges imperceptibly from the physiological response to effort, emotion and digestion into the pathological.

Etiology :

1. Sinus tachycardia occurs in all conditions with a high cardiac output, such as, thyrotoxicosis, arterio-venous aneurysm, anaemia, beri-beri.

2. Tachycardia is associated with most of the infectious diseases, especially those with *carditis*.

3. Tachycardia may be caused by excessive use of tea, coffee, alcohol, or certain drugs, especially those affecting autonomic activity *e.g.* atropine and adrenaline.

4. Simple tachycardia is a common symptom in patients who are convalescent after prolonged illness.

5. Anxiety is a common cause of tachycardia, especially when emotional disturbance is expressed through the cardio-respiratory system.

Symptoms :

Sinus tachycardia mostly is symptomless, but sometimes patients are conscious of the rapid heart action.

Sinus Bradycardia :

Sinus bradycardia means a slow heart rate of 40—50 beats per minute. Sinus slowing is due to increased vagal tone and diminished sympathetic tone. It may be induced by carotid sinus massage.

Etiology :

Sinus bradycardia occurs :

1. during convalescence from some infectious fevers, especially influenza, diphtheria, typhoid and typhus ;

2. in certain toxic conditions, such as jaundice ;

3. in hypothyroidism ;

4. occasionally in organic heart disease ;
5. as a result of certain drugs, *e.g.* digitalis and opium ;
6. in increased intra-cranial pressure ;
7. in vasovagal fainting-reactions.

Diagnosis :

Sinus bradycardia may be distinguished from the various forms of heart-block by clinical correlation of the arterial pulse, the venous pulse and heart sounds. The heart rate is increased by effort, emotion and fever in sinus bradycardia, but not in heart block. The electrocardiogram is diagnostic.

Sinus Arrest (Sino-Atrial block)

This condition occurs in normal individuals by increased vagal tone, so that the whole heart is stopped for one or more beats and should be regarded as an extreme example of sinus bradycardia. It may be caused by digitalis or quinine poisoning.

Sinus Arrhythmia :

The impulse originates in the S.A. node. But the rhythm is irregular. The heart rate increases in inspiration and slows in expiration. Hence, deep breathing may help in its differentiation from other arrhythmias. This rhythm is of no pathological significance and is most commonly seen among the young. The electrocardiogram shows rhythmic variations in the length of the cardiac cycles, but is otherwise normal.

ECTOPIC BEATS OR RHYTHMS

Definition :

Ectopic beats or extrasystoles are premature contractions arising as a result of impulse formation at a site other than the S.A. node. They may arise in the atria, atrio-ventricular node (A.V. node) or the ventricles. They may be regular or irregular.

Most of the ectopic beats are followed by a diastolic pause, which is longer than the normal, because the following sinus impulse falls on refractory tissues. Occasionally, however, the ectopic

beat occurs early in the cycle, and muscle recovers in time for the next sinus beat to occur without a pause. This is, then, a *true extrasystole* and is referred to as an *interpolated beat*.

Etiology :

1. Ectopic beats occur at any age in either sex. They are rare in childhood and increase in frequency throughout adulthood. They are common in men more than women.

2. Most patients with premature beats show no evidence of organic heart disease. The diseased heart, however, shows an increased tendency to form ectopic beats.

3. When there is ventricular disease, ventricular ectopic beats are common, and when there is atrial disease, as in mitral stenosis, atrial ectopic beats tend to occur, and may herald the onset of atrial fibrillation.

4. It is unusual to detect any cause for ectopic beats in patients without gross organic heart disease, but the mental and physical fatigue increase their occurrence, as does excessive use of tea, coffee, tobacco and alcohol.

Clinical Features :

1. Many patients are unconscious of ectopic beats ; others experience palpitation, a sense of missing beat, a large thumping in the chest or the sensation of heart turning over, while some declare that the heart stops.

2. Occasionally more serious symptoms of fainting or syncope may appear.

3. When the ectopic beats do not reach the wrist, auscultation reveals sounds of premature contraction. Sometimes the premature contraction is so feeble that the closure of aortic valves is not heard, and a group of three sounds (two normal and one ectopic) is heard. The normal sounds are : *Atrial extrasystoles* and *nodal extrasystoles* and the third one is that of *ventricular ectopic beat*.

Diagnosis :

In most cases, correct diagnosis can be made by palpation of the pulse and auscultation. Cardiogram will sometimes be helpful.

Treatment :

(a) **Emotional causes** need the following remedies

1. Aconite
2. Gelsemium
3. Coffea
4. Opium

(b) **Tea drinking** needs **China off.**

(c) **Tobacco smoking or chewing** requires :

1. Arsenicum
2. Gelsemium

(d) **Alcohol habit** needs :

1. Nux Vom.
2. Spigelia
3. Coffea

(e) For organic heart disease, select from :

1. Arsenic iodide.
2. Cactus G.

(f) for **physical exertion** :

1. Rhus Tox.
2. Coca.

(g) for **Collapse and block** :

1. Craetagus
2. Camphor
3. Veratrum Alb.

PAROXYSMAL ATRIAL TACHYCARDIA

Definition :

Paroxysmal atrial tachycardia is a condition in which there are repeated attacks of rapid beating. The onsets and terminations are sudden. The paroxysms may last for a few minutes or up to a few days. They may occur rarely or with great frequency.

Etiology :

The etiology is unknown. Patients with normal or diseased hearts may be affected. Paroxysmal tachycardia may occur at any age ; it is rare in infancy and increases in middle life; being less common after 60. Both sexes are equally affected. Paroxysmal tachycardia may occur in any form of heart disease, but patients with mitral stenosis, hyperthyroidism and atrial septal defect are more commonly affected. Most attacks appear spontaneously, but in certain cases a sudden change of posture, excessive emotion or physical exertion may provoke an attack. Tea, coffee, alcohol and tobacco may be aggravating factors.

Clinical features :

(1) Severe palpitation commences suddenly with little warning.

(2) The rapid heart beat may affect the whole body with pulsation.

(3) Attacks may be accompanied by sternal discomfort, and relative coronary insufficiency may develop with severe ischaemic pain.

(4) Giddiness is common and rarely syncope may occur.

(5) Sensation of great anxiety and extreme exhaustion may be experienced.

(6) Much flatulence, abdominal distension, vomiting may occur at the end of the attack.

(7) Polyuria is common.

(8) Attacks of migraine are sometimes associated.

(9) Rarely congestive heart failure may develop.

(10) Physical signs are : tachycardia (140—200) and those of any associated disease.

Diagnosis :

It depends mainly on a history of repeated sudden attacks of tachycardia without cause. An electrocardiogram in the attack is diagnostic.

ATRIAL FLUTTER

Definition :

Atrial flutter is a condition of rapid atrial pulsation at 150-360 beats per minute. The onset is sudden. In majority of cases, there is partial atrioventricular block varying from 2:1 to 5:1, the former being more common. Ventricular rates are usually from 160 to 180 per minute. Atrial flutter is much less common than either atrial tachycardia or atrial fibrillation. Paroxysms of flutter usually last much longer than those of paroxysmal tachycardia (atrial) and conversion to atrial fibrillation occurs readily.

Etiology :

Atrial flutter is almost always associated with organic heart disease. Men are most commonly affected. It may be responsible for tachycardia in infancy, but otherwise is unusual under 40 years of age and most common after 60.

Clinical features :

- (1) It may cause the same symptoms as paroxysmal tachycardia.
- (2) Cardiac pain may occur, and congestive heart failure may be precipitated from its persistent attacks.
- (3) Heart rate is usually rapid and regular, but there may be sudden changes in the rate due to A.V. block.
- (4) The loudness of the first heart sound may vary with the varying degree of block.
- (5) Sometimes "a" waves are seen in the neck.
- (6) The electrocardiogram "p" waves are regular, and may sometimes be abnormal, as the condition depends on the site of the ectopic impulse formation.

Prognosis :

Prognosis depends on the nature of the underlying disease.

Treatment :

As under, '*ectopic beats*'.

ATRIAL FIBRILLATION

Definition :

Atrial fibrillation is a common and important disorder, which is probably due to multiple ectopic foci discharging at variable rates. Rapid fibrillary waves take the place of normal contractions and the ventricles respond erratically. The atrial rate is 350 to 600 per minute, but the A.V. bundle cannot conduct so many impulses, and varying degrees of heart block always exist. The ventricular rate is usually 100 to 150 per minute and the rhythm is totally irregular. The condition may be permanent or paroxysmal. Paroxysmal fibrillation is sometimes the precursor of established fibrillation.

Etiology :

The causes are :

- (1) Rheumatic heart disease, usually in young or middle-aged individuals or after mitral valve disease (stenosis).
- (2) Ischaemic heart disease and/or hypertension in persons past middle age.
- (3) Thyrotoxicosis especially in older patients.
- (4) Rarer causes include diphtheria and pneumonia, operations and pericarditis. It is uncommon in congenital and pulmonary heart disease and in aortic valvular disease.

Clinical Features :

Some patients are unaware of any irregular heart action but many experience palpitation. Dizziness, syncope, and cardiac pain sometimes accompany an attack. Heart failure may develop with the result that symptoms take a severer turn. Systemic and pulmonary emboli are common complications, when atrial fibrillation is due to valvular disease.

Diagnosis :

Atrial fibrillation is recognised by total irregularity of the pulse in rhythm and volume. Pulse deficit is usual. When there is doubt,

electrocardiography should confirm the diagnosis by disappearance of 'p' waves.

Treatment :

See "Palpitation" "Tachycardia" and "Heart failure".

DISORDERS OF CONDUCTION

(Heart Block)

Definition :

When the conduction of the excitatory impulse is delayed or interrupted at any point during its passage from the S-A node over the rest of the heart, it is known as "*Heart block*". There are two types of heart block (a) *Sino-atrial (S.A) block*. (b) *Atrioventricular (A.V) block*.

(a) **S.A. block.** This is relatively a rare condition in which there is no beat owing to failure of impulse formation at the sinus node or failure of atrial response to sinus activity.

(b) **A.V. block.** The condition may be transient, paroxysmal or permanent. There are three grades :

(1) *Delayed A.V. conduction* of the impulse from the atrium to the ventricle, resulting in the prolongation of P-R (pulse rate) interval.

(2) *Partial heart block* with dropped beats due to intermittent failure of atrio-ventricular condition.

(3) *Complete heart block* : when there is complete A-V dissociation.

Etiology :

Depression of conductivity is most commonly due to ischaemia, fibrosis or inflammation of the bundle of His, or to vagal stimulation.

(1) *Coronary artery disease* is the chief cause.

(2) *Focal fibrosis* is a common cause of chronic heart block.

(3) Rheumatic fever is commonly responsible for prolongation of P-R interval and rarely for severe grades of heart block.

(4) *Digitalis* more frequently causes milder degree of impaired conduction.

(5) *Aortic Stenosis* may result in functional coronary insufficiency.

(6) *Cardiomyopathies*.

(7) *Congenital heart disease*: causes complete heart block occasionally on account of the maldevelopment of the bundle.

(8) *Disorders of atrial rhythm*: is caused from A.V. tachycardia.

(9) *Diphtheria* and *syphilis* are rare causes of heart block.

Diagnosis :

(1) *Heart block* is diagnosed electrocardiographically with practice and patience; many cases of heart block can be recognised by inspection of the jugular venous pulse and simultaneous palpation of the opposite carotid artery.

(2) *Delayed heart block* can only be diagnosed on electrocardiogram.

(3) *Partial heart block* is diagnosed by auscultation which will reveal that there is no ventricular beat and the first heart sound may vary in intensity.

(4) *Complete heart block* is suspected, when the pulse rate is slow (30 to 40) and regular and does not vary with exercise.

Treatment :

See "Ectopic beats".

XII—DISEASES OF BLOOD VESSELS

Diseases of blood vessels are closely related to the diseases of the heart, and combined cardiovascular disorders now form the largest group of fatal diseases. Arterial degeneration mainly by its effects on the heart and brain, is the commonest underlying causal factor. With advancing years, there is a steadily rising incidence of ischaemic heart disease and cerebral vascular disorders of the same

order as the incidence of cancer. The mechanisms involved in the production of arterial degeneration are obscure, but *advancing age*, *diabetes* and *high blood pressure* are the chief contributory factors. By far the most important arterial degeneration is atheroma, the deposit of hard yellow plaques of lipid material in the inner coat of the arteries, which may be related to high level of cholesterol in the blood. Again arterial stress or "wear and tear" is the chief predisposing factor, so that the maximum incidence is seen in old age and with chronic hypertension.

In addition to arterial degeneration, the other reasons for arterial diseases may be :

(a) *Congenital*, e.g. congenital aneurysms of the cerebral arteries.

(b) *Traumatic*, by injuries to the outer coats of the vessels through penetrating wounds, particularly in the lower limbs.

(c) *Inflammatory*, as a result of syphilitic infection as in inflammation of the aorta (aortitis). It also involves cerebral vessels, leading to obstruction by thrombosis or emboli.

(d) *Neoplastic*, these are rare and are found on the skin in the liver and brain.

(e) *Local disorders of vascular tone* : excessive vasoconstrictive (any agent which causes the narrowing of the lumen) response to cold produces digital asphyxia, as in Raynaud's phenomenon. Arterial spasm may also complicate arteriosclerosis.

ATHEROSCLEROSIS AND ARTERIOSCLEROSIS

Definition :

Arteriosclerosis is usually associated with degenerative arterial changes of the advancing age which include middle-aged and elderly people. Medium and large blood vessels are mainly involved.

Atherosclerosis is a condition which principally affects the aorta, large arteries and the certain medium-sized vessels particularly the

coronary and cerebral arteries. The obstruction not only involves the atheroma (related to cholesterol in blood) but also the thrombosis at the site.

Etiology :

While degenerative changes in the arteries are the causative factors of arteriosclerosis and consequent hypertension, the principle causative factor of atherosclerosis is the presence of cholesterol in the lumen of the coronary artery. In particular atherosclerosis is due to the high dietary content of animal fat which leads to the increase of blood cholesterol. Other associated factors may be hypertension, (though atherosclerosis may be advanced in the presence of normal blood pressure), cigarette smoking, lack of exercise and emotional tension. Another important cause is the material prosperity of the people, especially of the working classes, where the standard of living has been generally low. Another cause for atherosclerotic lesion is thrombosis.

Clinical features :

Generally there are no clinical signs to enable one to recognise atherosclerosis, but its recognition is possible by its effects on the body. With narrowing of the lumen of the vessel, there is serious impairment of the blood supply to important structures, resulting in disorders like angina pectoris, arteriosclerosis, venous thrombosis, cardiac infarction, hemiplegia, or gangrene. The aorta and its branches widen.

Treatment :

Atherosclerosis and arteriosclerosis.

(1) **Adrenaline.** Used successfully both in high blood pressure and arteriosclerosis, roaring in ears due to blood pressure is also relieved.

(2) **Arnica.** Of use in cerebral arteriosclerosis, vertigo, heaviness and cerebral affection, plethoric people who have a tendency to haemorrhage.

(3) **Arsenic Iodide.** Useful in senile hearts with arteritis, myocarditis, and fatty degeneration.

(4) **Aurum Mur.** Hypertrophy of heart, congestion to chest and head, strong palpitation, abnormal sensation in heart are characteristic symptoms.

(5) **Baryta Mur.** Arteriosclerosis of the large blood vessels and aorta, headache (heaviness), worse at night and when lying down, dizziness, threatened apoplexy with buzzing in ears. It should be given for a long time.

(6) **Crataegus Oxy.** For heart troubles after rheumatism, it is a powerful solvent of calcareous deposits in the lumen of the arteries.

(7) **Ergotine.** This is a remedy in the beginning of arteriosclerosis, when there is cardiac irritation with a hard heart sound. In advanced cases, potencies 1X and 2X should be administered and in earlier cases, 3X and 6X.

(8) **Natrum Iodide** is useful in high arterial tension in 1X potency, and later in 3X potency, when the pulse is softer.

(9) **Plumbum** (arteriosclerosis and hypertension).

HYPERTENSION

Definition :

The elevation of systolic and diastolic pressures above the normal is defined as "*hypertension*". The average normal blood pressure is about '125/75' mm of Hg. and the figure of 140/90 in an otherwise healthy adult may be taken to be the upper limit of the normal. There is a slight increase of blood pressure with advancing age.

ESSENTIAL HYPERTENSION

This term is somewhat confusing. It is sometime applied to benign hypertension or it may be used to cover all forms of non-renal hypertension. It would, therefore, be better, if the term is restricted to patients in whom no primary cause for hypertension can be discovered. Hence essential hypertension excludes renal and endocrine causes of all kinds. But it includes *malignant* and *benign* phase of the disease.

Étiology :

(1) It is slightly more common in women, is highest between the ages of 40 and 60 and is often more severe in its course and complications in men.

(2) There is a clearly recognised factor of heredity or, more probably, a combination of factors.

(3) In the benign phase, hypertension is often labile (unstable) and large variations may be produced by nervousness, emotion or activity.

(4) Obesity is undoubtedly an aggravating factor in essential hypertension.

(5) The cause of essential hypertension is, however, unknown and is referable to the organic disease of the renal arteries or arterioles.

There are two phases of essential hypertension, benign and malignant essential hypertension.

BENIGN ESSENTIAL HYPERTENSION**Pathology :**

The morbid anatomical changes found in essential hypertension are of two main types : Cardiovascular hypertrophy, and arterial degeneration :

In benign hypertension, the degenerative process takes the form of fatty hyaline (transparent) change in the arterioles with homogenous swelling of the wall, but without necrosis. This is characteristically seen in the afferent arterioles to the renal glomeruli. In larger arteries a combination of medial hypertrophy and intimal thickening is seen. In medium and larger arteries atheromatous degeneration occurs in the intima and atheromatous plaques may ulcerate or calcify and may be the site of arterial thrombosis. Occlusion may lead to infarction, or embolism may occur from arterial thrombosis and lead to obstruction of more peripheral vessels. Progressive

narrowing of arteries may lead to ischaemia of myocardium, brain and kidney and later to sudden aggravation of pre-existing hypertension or even to the development of malignant hypertension.

Symptoms :

(1) Benign hypertension may be symptomless for many years, particularly if the patient is unaware of its existence.

(2) Initial symptoms, such as, headache, giddiness, nervousness and palpitation are not uncommon. These may be often due to the awareness that it is there particularly among women.

(3) Apart from this, some patients develop headache (which is often severe) in relation to the high blood pressure, particularly after waking up in the morning. These headaches are migrainous in type.

(4) The majority of benign essential hypertension have no symptoms before the advent of an organic complication.

(5) Breathlessness on exertion or paroxysmal dyspnoea (nocturnal) indicates the development of myocardial insufficiency.

(6) Blurring of vision or sudden blindness in one eye may be due to haemorrhage from thrombosis.

(7) Hemiplegia results from cerebral thrombosis or from haemorrhage.

(8) Occasionally attacks of haemoptysis, haematemesis or haematuria are attributable to benign essential hypertension. There are few physical signs until the advent of complications.

(9) The appearance may be obese or thin and pale.

(10) The radial and brachial arteries are usually thickened and may be tortuous.

(11) The heart is often enlarged, the apex-beat forcible, the first sound at the apex loud or duplicated and second aortic sound accentuated.

(12) Very rarely the arteries are narrowed and threadlike ; the veins appear congested ; massive haemorrhages may result from retinal vein thrombosis.

(13) The papilloedema of benign essential hypertension is unilateral, while that of malignant hypertension is bilateral.

Complications :

(1) Hypertensive heart disease.

(2) Hypertensive encephalopathy (in which disturbances of vision or speech occur with fits and loss of consciousness).

(3) Cerebral thrombosis or haemorrhage.

(4) Defects in vision, such as, diplopia etc.

MALIGNANT ESSENTIAL HYPERTENSION

Definition :

If the term malignant hypertension is to be used, it should be confined to the clinical syndrome of severe diastolic hypertension with papilloedema and renal failure which occurs mainly in males between 30 & 40 years of age and which pursues a rapid downward course of death from uraemia within a year, unless a suitable treatment is instituted.

Etiology :

Most cases of malignant hypertension before the age of 30 are caused by chronic pyelonephritis or nephritis. When papilloedema and renal failure develop in a person known to have essential hypertension, condition is sometimes described as having entered the "Malignant phase". The common causes are :

(1) renal and endocrinal disorders.

(2) coarctation of the aorta, and

(3) toxæmia of pregnancy.

Symptoms :

(1) Headache in the frontal region or vertex associated with nausea or vomiting in the morning is usually the early symptom.

(2) Paroxysmal dyspnoea followed by dyspnoea on effort may be prominent.

(3) Pulmonary oedema with a distressing cough and blood-stained sputum is often present.

(4) Signs of right heart failure are often always there.

(5) Polyuria at night may cause considerable thirst.

(6) Intense necrotizing lesions in the kidney are often found in such cases.

(7) Characteristic blurring of the vision due to the presence of exudates or haemorrhage are often present.

(8) Transient paralysis or a mild convulsive attack may be an early symptom.

(9) Later attacks hypertensive encephalopathy with mental excitability and abnormal behaviour, severe headache, complete blindness and coma may be present.

(10) Occasionally severe abdominal pain may give rise to anxiety.

(11) Hypertension is severe above 220/120 mm of Hg. in majority of cases.

(12) Cardiac arrhythmia is rare.

(13) There is cardio-vascular hypertrophy.

(14) Papilloedema is the diagnostic sign of malignant hypertension and is usually bilateral associated with retinal oedema, haemorrhages and exudates; occasionally thrombosis of a large retinal artery or vein is seen.

(15) Pulmonary oedema produces fine inspiratory crepitations at the lung bases, with widespread rhonchi.

(16) Blood count shows leucocytosis, and rapidly developing anaemia.

Diagnosis :

The presence of papilloedema bilaterally is the all important diagnostic sign which differentiates malignant hypertension from benign. A further problem is the differentiation between malignant hypertension and intracranial tumour. Cerebral tumour may occur in a patient with benign hypertension. If marked albuminuria is present, and if there is renal impairment also, a diagnosis of malignant hypertension should be made. In the absence of full renal involvement, the full investigation of a tumour should be carried out.

Prognosis :

The patient may have long life, but more often symptoms of complications appear. Death often follows from left ventricular failure, cerebral haemorrhage and cardiac infarction, but less commonly from uraemia. Papilloedema, however, may resolve slowly and vision may improve.

Treatment :

General : (1) Adequate mental and physical rest and good period of sleep are essential.

(2) Long hours of work especially with stress and anxiety must be stopped.

(3) Diet need not be very restricted to proteins. A simple mixed diet without salt to provide for 2000 to 2500 calories may be allowed.

(4) If obesity is present, the diet should be restricted, till normal body weight is reached.

(5) Alcohol, tobacco, tea and coffee are restricted.

Curative :

(1) **Aconite.** Pulse full, strong and hard, anxiety, restlessness.

(2) **Glonoine**. Fulness in the region of heart with some sharp pains and fluttering of heart, as if the chest would burst open. Laboured breathing, so he must have his head high, which has pulsating headache.

(3) **Veratrum Viride**. Intense arterial excitement and congestion, the force and frequency of pulse being abnormal which is sometimes slow and sometimes rapid.

(4) **Allium Sativa**. Arterial *hypotension* or a fall of blood pressure begins in 30 to 45 minutes after 20 to 40 drops of mother tincture have been given in water for one dose.

(5) **Strophanthus**. Irritable heart with tense arteries and a free discharge of urine. Useful for heart failure of the aged in troubles of heart, dependent on kidney diseases.

(6) **Crataegus**. In threatened heart failure during tension, it will work well. Painful sensation of pressure in the left side of the chest below the clavicle is a good indication.

(7) **Viscum Album**. In arteriosclerosis and atheromatic gouty complaints especially when there is hypertension ; pulse small and weak ; dyspnoea worse on left side ; weight and oppression of heart, as if a hand was squeezing it. Other remedies that would be indicated are : *Aurum* ; *Baryta Mur.*, *Adrenaline*, *Pituitary gland extract* (after meals), *Gelsemium*, *Natrum Iodide*, and *Ergotine* (See *Arteriosclerosis* also).

(8) **Wyethia Q.** 3 to 4 drops of mother tincture at a time, till relieved.

HYPOTENSION

Definition :

Diminished blood pressure, when systolic is less than 110 mm Hg. and diastolic below 70 mm from any cause is known as *hypotension* or low blood pressure.

Etiology :

Low blood pressure may be physiological and unassociated with symptoms of ill-health. It is generally due to failure of blood pressure regulating mechanism, or due to standing for long periods at attention, or to allergic and medicinal causes.

Abnormally low blood pressure may be due to myocardial infarction or reduction in cardiac output due to sluggish circulation following haemorrhage, severe burns and consequent shock or gastro-enteritis, severe toxæmia or, heat exhaustion. Low blood pressure is associated with Addison's disease, or Simmond's disease or capillary dilatation.

Symptoms :

(1) A patient with low blood pressure has generally temporary symptoms of fainting and loss of consciousness. When it is persistent, he complains of lassitude, insomnia, headache, and giddiness. In some cases, there are no symptoms at all.

Signs :

The blood pressure is considered to be low, if the systolic reading is below 110 mm. Hg. Hypotension with bradycardia, nausea and sweating suggests a vasovagal attack. Prolonged hypotension may lead to impaired renal action and elevation of blood urea.

Treatment :

When hypotension is not associated with any organic disease, the following remedies may be used to advantage according to indications.

- (1) Carbo Veg.
- (2) Gelsemium.
- (3) Silicea.
- (4) Rhus Tox.
- (5) Kali Phos.
- (6) Naja.

CONSTRUCTIVE ARTERITIS

(Pulseless disease)

Definition :

Chronic progressive arteritis of the aorta and its branches causing absent peripheral pulses is called 'pulseless disease'.

Etiology :

The cause is unknown. It chiefly affects women from 18 to 40 years of age. Sex incidence and histology suggest a form of collagen disease resembling temporal arteritis.

Symptoms :

(1) Giddiness and syncope are the usual symptoms due to cerebral ischaemia.

(2) Hemiplegia, visual impairment, coldness and paraesthesia of the arms may be present.

(3) The peripheral pulses are, as a rule, absent or diminished.

(4) The blood pressure may be unmeasurable in the arms, but raised in the lower limbs.

(5) Symptoms of hypertension or cardiac ischaemia may occur.

Diagnosis :

Intravenous aortography will reveal the site and extent of constriction.

Treatment :

According to indications, remedies suggested are :

- (1) Glonoine (Blood pressure).
- (2) Cactus G. (Ischaemia).
- (3) Belladonna (Cerebral symptoms).
- (4) Causticum (hemiplegia).
- (5) Aconite (slow pulse).
- (6) Camphor (syncope).

THROMBO-ANGITIS OBLITERANS**(Buerger's Disease)****Definition :**

This is a disease characterised by acute inflammation with thrombosis affecting both arteries and veins.

Etiology :

(1) The disease affects all races between ages of 25 and 40 years. Men are affected almost exclusively.

(2) Smoking has been found to be the most predisposing cause in 99% of cases.

(3) The real cause, however, is unknown. There has been an attempt to demonstrate an infective cause or an allergy to nicotine, but remains inconclusive.

(4) Some patients develop visceral vascular lesions. The relationship to the collagen disorders is even more marked in these cases.

Symptoms :

(1) The most usual symptom is intermittent claudication. ~~limping~~

(2) Venous thrombosis affects the lower limb and produces superficial painful swelling usually in the calf.

(3) Peripheral gangrene may affect the toes or a larger part of the extremity, if the main artery is obliterated.

(4) Pain in the feet at night is not uncommon and is characteristically relieved by hanging the leg downwards out of bed or by walking about.

(5) Ischaemic pain in the arms is rare.

(6) Cardiac infarction or cerebral thrombosis may occur.

(7) The patients may present Raynaud's phenomenon and gangrene of the extremities.

Signs :

(1) When a main artery is involved, the skin beyond the lesion is cold and peripheral pulsation is absent.

(2) If ischaemia is induced by elevating the limb for some minutes, the return of the circulation to the skin on lowering is delayed.

Diagnosis :

The disease must be distinguished from other causes of arterial occlusion. The finding of the obliterative arterial disease with or without gangrene in a male under 50, strongly suggests thrombo-angitis obliterans. The association of arterial disease with painful swelling due to venous thrombosis is diagnostic.

Prognosis :

The outcome is unpredictable. In some cases, the disease becomes inactive after several attacks.

Treatment :

(1) Lachesis is the most effective remedy for dissolving the clot preventing complications.

(2) **Bothrops** also will be of much help.

(3) Kali Mur.

RAYNAUD'S PHENOMENON

Definition :

Raynaud's phenomenon consists of attacks of paroxysmal spasms of arteries of fingers and toes (extremities) which produce intermittent 'anaemia', cyanosis, brought on by cold with return of skin colour to normal between attacks.

Etiology :

Raynaud's phenomenon is the result of a temporary complete occlusion of the digital arteries due to an excessive vasoconstrictor response to cold. It may occur over many years without cause and any structural changes. It is then called Raynaud's disease.

Symptoms :

(1) Attacks may be brought on by any stimuli which cause digital vasoconstriction, such as, handling cold objects, sudden fright or emotional tension.

(2) The colour of the fingers during attack is commonly pale bluish, often white, with small blue patches.

(3) In a severe attack the fingers become waxen and shiny. On relaxation of the spasm, the fingers may be deeply cyanosed.

(4) At this stage, the fingers feel dead and often tingle. If cut, they do not bleed or a little dark blood oozes out.

(5) After about 20 minutes, the blood circulation returns, pinkish patches begin to appear and the whole digit becomes cyanosed, and finally the skin changes to bright red colour.

(6) There may be a unpleasant numb aching sensation.

(7) After several years the fingers become thickened and finger tips ulcerated.

(8) Finally the extensive gangrene of the tips is sometimes seen.

Diagnosis :

Raynaud's phenomenon should be differentiated from chilblains, frost-bite, clubbed fingers and cyanosis of fingers and toes due to lesions of the heart and lungs, enterogenous cyanosis and arterial thrombosis. The diagnosis is certain, if immersion of hands in cold water provokes an attack.

Treatment :

Curative :

(1) **Bacillinum 30** once a week.

(2) **Arsenic 3** (Spasms and gangrene).

(3) **Secale 30** (Numbness, fingers and feet bluish, shrivelled, spread apart or bent backwards and numb).

(4) **Cactus G.** (Oedema of hands and feet, icy cold hands).

ARTERIAL ANEURYSMS

Definition :

An aneurysm, which results from the destruction and other changes in the walls of an artery, is a permanent dilatation of a small portion of an artery. It may also be the dilatation of aorta itself, or certain smaller vessels in brain and other places.

Etiology :

Aneurysm, being a permanent dilatation, is caused by the destruction of arterial muscular tissues. The pathological causes may be congenital, traumatic, inflammatory, or degenerative. The common inflammatory factors producing aneurysms, are syphilis, bacterial endocarditis, and peri-arteritis nodosa. Atheroma causes dilatation of the descending portion of the aorta. *Congenital aneurysms* are almost confined to the arteries at the base of the brain. The *traumatic aneurysms* result from injuries like gun-shot wounds. The degenerative lesions causing arterial aneurysm are mostly due to atheroma which produces a uniform dilatation of aorta.

Symptoms and Signs :

- (1) Palpitation.
- (2) Dyspnoea and cardiac asthma.
- (3) Bronchial catarrh.
- (4) Difficulty in swallowing.
- (5) Congestion and hyperaemia of brain.

Signs :

- (1) Swelling of jugular veins.
- (2) Cyanosis.
- (3) Oedema of upper extremities.
- (4) A dull percussion note on the affected part of the chest.
- (5) Swelling on the right side of the sternum between the second and the third rib, if the aneurysm is an enlargement of the convex part of aorta.
- (6) If this enlargement is on the concave part, the swelling is felt on the left side in the same space.

Diagnosis :

It is generally obvious from the presence of a pulsating tumour. When in doubt, X-ray examination should usually decide.

Treatment :

(1) **Baryta Carb.** The treatment should begin with this remedy, when there are no specific indications, and be followed by

Lycopodium, if Baryta fails, provided there is constipation, flatulence and loaded urine.

(2) **Carbo Animalis**. Great emaciation in sickly or syphilitic subjects, burning, *pressive* pain or stitches in chest (right side).

(3) **Crataegus Oxy**. When there are symptoms of heart weariness and weakness. It may be followed by *Arsenicum* (after food).

(4) Other possible remedies are : Calc. Fluor (capillary aneurysm) ; Kali Iod, Nat. Iod., Spigelia, Spongia, Veratrum Viride.

ARTERIAL EMBOLISM AND THROMBOSIS

Arterial embolism or obstruction is a condition in which there is blockage of a systemic artery by a portion of blood clot from a thrombus in the heart, or a large atheromatous vessel or of vegetations from the heart valves in endocarditis. Very rarely a portion of clot from the right side of the heart may pass to the left side through a septal defect and may cause embolism in a systemic artery.

Etiology :

Blockage of systemic artery by an embolus is not usually attributed to primary arterial disease. But it is due to the detachment of a portion of a clot from a thrombus originating from the heart, or the heart valves in sub-acute bacterial endocarditis. The common sites for systemic embolism are the cerebral arteries (see apoplexy), the arteries of the limbs, (femoral embolism) and the mesenteric arteries. Infarction of spleen, kidney and retina also occurs.

Symptoms and Signs :

The onset of femoral embolism is usually sudden with acute pain in the limb, which rapidly becomes numb, cold and useless. On examination, the limb is pale and pulsation is absent below the level of obstruction. Sensation may be lost in a few hours, but hyperaesthesia (excessive sensitiveness) develops later. If embolus is not removed, gangrene is likely to form. Occasionally signs of obstruction develop gradually over several hours without pain.

Prognosis :

This depends on the total cardio-vascular background, the age, the general condition of the patient and the size of the blockage.

Treatment :

Surgical intervention may be necessary, if Lachesis or Kali mur. or Amm. carb. fail to give relief.

VENOUS THROMBOSIS**(Thrombo-Phlebitis)****Definition :**

Phlebitis is an inflammation of the wall of the vein. It is divided into two great classes :

- (1) Non-suppurative or plastic, and
- (2) suppurative. It is commonly applied to all forms of intra-venous thrombosis.

Thrombo-phlebitis is an inflammation of the vein resulting from changes in the composition of blood leading to clotting. The presence of this clot itself leads to non-suppurative or plastic phlebitis. It is also called simple thrombo-phlebitis.

When there are multiple occurrences of this sort of condition in different parts of the body, it is called THROMBO-PHLEBITIS MIGRANS.

Venous thrombosis or suppurative thrombo-phlebitis may be due to the introduction of infection into a vein, usually during prolonged intra-venous infusion of blood or saline.

Etiology :

The non-suppurative condition or simple thrombo-phlebitis is caused by the formation of a non-infective clot. No specific etiological factor is known, which is responsible for changes in the composition of blood, leading to thrombo-phlebitis. But other causes of plastic-phlebitis are :

- (1) trauma
- (2) gout

(3) typhoid fever

(4) pneumonia and influenza

(5) after operation

(6) puerperal phlebitis. It may be noted that phlebitis is most common in lower legs. This condition occurs where venous stasis is not a prominent feature, as in polycythaemia and leukaemia.

Symptoms :

(a) Non-suppurative :

(1) The whole limb becomes swollen ; pain is variable and not usually conspicuous.

(2) There is congestion of superficial veins and frequently the thrombosed vein may be palpated as a tender hard cord.

(3) Fever, malaise and tachycardia may be present at the onset.

(4) Occasionally the limb may become swollen with signs of arterial insufficiency.

(5) There is frequent association with some malignant disease, trauma or surgical operation.

(6) Thrombosis of the inferior vena-cava may occur.

(b) Suppurative :

(1) General symptoms are malaise, fever and shivering.

(2) Pyaemia may follow if the condition is not treated promptly.

(3) Locally there is redness and pain with swelling of the affected limb.

(4) The thrombosed vein may be hard and tender.

(5) An abscess may form.

(6) Pyogenic infection may spread anywhere in the body.

Prognosis :

This is generally good, except that there is the risk of embolism or thrombosis spreading to larger veins. Treatment may minimise such risks.

Treatment : General :

(1) Patients with phlebitis should be put to bed and the limbs elevated and wrapped in cotton wool.

(2) All sudden movements, friction or handling should be avoided.

(3) The bowels should not remain constipated.

(4) The diet should be restricted to fish and light starchy foods. Lime-salts, such as, milk should be limited.

Curative :

(1) **Hamamelis.** Simple inflammation with much sensitiveness. (Use this externally also).

(2) **Pulsatilla.** Use this along with Ham., following childbirth (Puerperium) or, when there is much pain.

(3) **Lachesis.** For septic phlebitis (If this fails, use *Gunpowder* or *Pyrogenium*).

(4) **Fluoric Acid.** In old standing cases.

(5) **Kali Mur.** Venous thrombosis. Give this every ten minutes (*Sulphur.* if this fails).

CARDIAC INVOLVEMENT IN MISCELLANEOUS CONDITIONS

The heart is influenced and affected in the following diseases :

(1) Thyrotoxicosis (Hyperthyroidism).

(2) Hypothyroidism (Myxoedema).

(3) Beri-beri.

(4) Epidemic dropsy.

(5) Diabetes mellitus.

(6) Heart disease in pregnancy.

(1) THYROTOXICOSIS

Excessive secretion of thyroid hormones result in anxiety, tachycardia, sweating, loss of weight, increased appetite and fine tremors of the out-stretched hands. The heart has such a forcible

impact, that it may have dilatation of both the ventricles. The cardiac output increases by 50% and the heart beats become rapid, viz., about 120 per minute. A systolic murmur is also heard in the mitral region. This condition is seen in older patients over 40 years of age.

Remedies in general are :

- (1) Arsenicum.
- (2) Thyroidinum.
- (3) Adrenaline.
- (4) Iodine.

(2) HYPOTHYROIDISM (MYXOEDEMA)

In majority of cases of advanced myxoedema, the secretion of thyroid hormones is deficient, and so the patient becomes slow in movements and dull mentally. There is slow pulse, often 60 per minute, low temperature, dry skin and the swelling of limbs, and face. The heart is enlarged with degenerative changes. The apical beat is not usually palpable and the heart sounds are soft. For 'Treatment' see Hypothyroidism, Chapter VI.

(3) BERI-BERI

Heart is affected in Beri-beri, a deficiency disease caused by lack of vitamin B₁, in countries where the main diet of the people is polished rice. The symptoms are : pain from neuritis, paralysis, muscular wasting, progressive oedema, mental deterioration and finally heart failure. The right heart gets enlarged with congestion of veins. The pulse becomes quick and collapsing. Murmurs are not heard. Dyspnoea, palpitation, and epigastric pain are often present in consequence of degeneration of the heart muscle and dilatation of blood vessels.

Treatment :

For Beri-beri, refer to Chapter XII.

(4) EPIDEMIC DROPSY

The various chambers of the heart get enlarged and walls look thick as the capillaries throughout the heart muscle become dilated.

The efficiency of contraction of various chambers is impaired, and in the long run degeneration of the heart muscles takes place and sometimes is attended with haemorrhage. Finally, the heart stops due to failure of circulation.

Treatment :

Adonis V., Caffein, Digitalis, Digitaline, and Strophanthus are the chief remedies.

(5) DIABETES MELLITUS

When diabetes is long-standing, coronary atheroma may be causing plugging and hardening of arteries and contributing to heart congestion and failure.

Treatment :

See "Diabetes Mellitus" in Chapter IV.

(6) HEART DISEASE AND PREGNANCY

During pregnancy, there is a great pressure on heart, as the circulation of blood is wider and larger per minute for a period of nine months. During this period the heart is pushed upwards by uterus, and so the right ventricle works at a disadvantage. There may be dyspnoea, and even oedema of feet, though this may not be serious.

If there is any past history of any enlargement or failure of heart the condition may take an unfavourable turn. Else, there should be no anxiety. After the seventh month, careful supervision is, however, needed. Unusual exertion should be avoided, and periods of bed rest may be increased. The intake of salt may be reduced and Crataegus administered in 5 drop doses twice a day.

CARDIAC HYPERTROPHY AND DILATATION

Definition :

Hypertrophy is an increase in the size of the heart muscles and hence in the structure of the heart, independent of its natural growth ; while *dilatation* is the stretching and outward enlargement of the tissues of the heart, resulting in widening of the cavity of the heart.

Etiology :

The most frequent cause of both these conditions is a disturbed circulation in view of either a disease of valves or arteries, such as, mitral stenosis and incompetence, pulmonary stenosis, or due to obstacles in the capillaries of lungs, chronic bronchitis and diseases, like emphysema and pulmonary fibrosis, pericarditis, myocarditis. Mental excitement, strong coffee, tea, liquors have been found to be the exciting causes of this complaint.

Signs :

(1) The impulse of heart is much increased, as shown in the shaking of the whole thorax.

(2) The apex-beat is observed much lower towards the left of the nipple line.

(3) Hypertrophy and dilatation of left ventricle nearly gives the same results.

(4) In the right ventricle, the sound of dull percussion extends further towards the right side. The impulse also is not strong, and not so shaking.

(5) The jugular veins swell and undulate, and are associated with cyanosis, dropsy and blood-spitting from lungs.

Differential Diagnosis :

In cardiac dilatation, pulse is weak and feeble, the apex beat indistinct, and the face pale.

Treatment : General :

Diet. This should be free from liquor, spices, tea and coffee.

Treatment :

(1) **Kalmia** is a remedy for cardiac hypertrophy, especially after rheumatism, as it has numbness of the left arm, much pain, and anguish about heart, some dyspnoea, palpitation and pressure from epigastrium towards heart. Pulse is intermitting every third or fourth beat and consequently is slow, though not as slow as that of "*Digitalis*".

(2) **Cactus G** is adapted to hypertrophy of heart in young people with characteristic symptoms of grasping and relaxing of heart alternately.

(3) **Arsenicum**. Useful in hypertrophy from climbing high places, mountains, etc.

(4) **Rhus Tox** is a grand remedy for hypertrophy of athletes from over-exertion.

(5) **Arnica and Bromine** are also indicated in these cases.

(6) **Agaricine**. Dilatation, associated with emphysema, is the chief symptom. Twitchings should be present to indicate this remedy.

(7) **Adonis Vernalis** is useful in serious dilatation of heart, when there has been a previous attack of rheumatism. The remedy is similar to 'Digitalis' but less dangerous than the latter.

(8) **Strophanthus**. Found useful for a weak, hypertrophied, irritable heart with tense arteries, and a free discharge of urine. It will reduce the pulse, and strengthen heart.

(9) **Crataegus**. It suits cases of failing compensation with dilatation of heart, when there is a painful sensation of pressure on the left side of chest. It is a good tonic for weakened hearts.

(10) **Plumbum Aceticum** stitches in the region of heart during inspiration with anxiety, heat and redness of face, rushing of blood in the region of heart during a rapid walk; anguish about heart with cold sweat; palpitation of heart.

CHAPTER—III

RESPIRATORY SYSTEM

*(DISEASES OF NOSE, NASOPHARYNX,
LARYNX, BRONCHI AND LUNGS)*

RESPIRATORY SYSTEM

I—COMMON MANIFESTATIONS OF RESPIRATORY DISEASES WITH TREATMENT

Symptoms :

The main symptoms by which respiratory diseases can be recognised and diagnosed are :

- (1) Cough with or without sputum.
- (2) Pain in chest, and
- (3) Dyspnoea.

COUGH

Cough is the most frequent of all respiratory symptoms. It may be dry when there is no expectoration. It may bring out sputum with or without much effort. There is, in any case, irritation in the throat, pharynx, larynx or in bronchi below in the lungs.

Causes and manifestations :

(1) It is short, painful and half-suppressed as in dry pleurisy and pneumonia.

(2) It may be loose and readily productive of sputum, as in bronchiectasis.

(3) It may be paroxysmal, ineffectual and exhausting as in some cases of chronic bronchitis and asthma.

(4) It is usually an early symptom in bronchial carcinoma, but may be a late development in pulmonary tuberculosis.

(5) Generally it is worse at night or on waking.

(6) Often it is aggravated by changes in temperature or weather.

(7) The explosive character of a normal cough is lost, when laryngeal paralysis is present (bovine cough).

(8) Cough is accompanied with stridor in whooping cough or in the presence of laryngeal or tracheal obstruction.

SPUTUM

(1) Purulent sputum is due to infection in the respiratory tract and is typically seen in acute and chronic bronchitis, bacterial pneumonia, bronchiectasis and lung abscess. In the last two conditions, the sputum may be copious and sometimes foetid. Mucoid sputum is due to oversecretion of bronchial mucus. In early cases of pulmonary tuberculosis, the sputum is mucoid, but in advanced cases it is usually purulent.

Treatment :

(1) **Acalypha indica.** Hard racking cough followed by bright-red blood, worse in morning and at night.

(2) **Aconite.** Cough, caused by exposure to dry cold winds, chiefly in winter ; cough, dry, short and hacking, worse at night.

(3) **Alumina.** Cough in the morning, soon after waking, or on talking, or singing, or when condiments produce cough.

(4) **Ambra Grisea.** Nervous spasmodic, with hoarseness and eructations, on waking in the morning, worse in the presence of people, or tickling in the morning, in throat, larynx and trachea, getting out of breath when coughing.

(5) **Ammonium Carb.** Cough every morning about 3 o'clock, with dyspnoea, palpitation, burning in chest, worse ascending.

(6) **Antim tart.** Coughing and gasping consecutively, cough excited by eating, with pain in chest and larynx on right side.

(7) **Arsenic Album.** Cough worse after midnight and lying on back, with expectoration, scanty and frothy, and wheezing respiration ; or dry cough as from sulphur fumes ; or after drinking cold drinks.

(8) **Belladonna.** Cough with pain in left hip, or barking cough, or whooping cough with pain in stomach, before the attack, with expectoration of blood, or stitches in chest when coughing.

(9) **Bryonia.** Cough excited, when coming from cold air to warm air, or cough dry at night, worse after eating, or drinking with vomiting and stitches in chest.

(10) **Calcarea carb.** Tickling cough, troublesome at night, dry and free expectoration in the morning ; or cough by eating.

(11) **Capsicum.** Dry hacking cough expelling offensive breath from lungs and dyspnoea.

(12) **Carbo veg.** Cough with itching in larynx, spasmodic cough with gagging and vomiting, or cough with burning in chest, or dry short cough, worse speaking, and at night, or spasmodic dry cough with muscular soreness and nervous irritation.

(13) **Coccus Cacti.** Constant irritation and hawking from enlarged uvula, coryza with inflamed fauces.

(14) **Conium.** Dry cough, almost continuous, worse evening and at night, caused by dry spot in larynx, or when lying down, talking or laughing.

(15) **Croton. Tig.** Cough as soon as the patient touches the pillow and so he must get up.

(16) **Eupatorium perf.** Chronic, loose cough, relieved by getting on hands and knees.

(17) **Hepar Sulph.** Hoarse cough, when exposed to dry cold winds, worse when walking ; cough is excited, whenever the covering on the body is removed.

(18) **Hyoscyamus.** Dry spasmodic cough, worse at night on lying down, better sitting up.

(19) **Ipecac.** Cough incessant and violent with every breath, suffocating in character. The cough may be dry or with trifling mucous or continued sneezing, wheezing and coryza.

(20) **Euphrasia or Cepa.** For a cough with catarrh, much sneezing, running from and soreness of the nose, and when the eyes are affected.

(21) **Kali. Carb.** Dry hard cough about 3 a.m. with stitching pains and dry pharynx ; metallic hacking cough, tickling in larynx.

(22) **Causticum.** For protracted, short, dry cough, or hollow cough with burning pain in the chest and windpipe. For chronic coughs also it is used.

(23) **Lachesis.** Dry suffocative fits or tickling cough with little secretion and much sensitiveness, worse by pressure and after sleep and in cold air.

(24) **Mercurius Sol.** Cough with yellow mucus or purulent mucus soreness from fauces to sternum, cannot lie down on the right side. For dry cough also which shakes and exhausts the patient at night, or a tickling cough before falling asleep.

(25) **Nux Vomica.** Dry scraping cough, caused by a sensation, as if something was torn loose in the chest with shallow respiration and oppressed breathing, or tight, dry, hacking cough which brings a burning headache and bruised pain in the epigastrium.

(26) **Rumex.** Tickling in throat pit causes cough with copious discharge from nose and trachea. For dry, teasing cough also preventing sleep, aggravated by pressure, talking and by inspiring cold air and at night.

(27) **Pulsatilla.** Dry cough in the evening, and at night ; he must sit up in bed to get relief ; loose cough in the morning with copious expectoration.

(28) **Silicea.** Violent cough, when lying down, with thick lumpy expectoration, or yellow pus. The cough shakes the patient, so as to cause pain in throat and abdomen.

(29) **Spongia.** Cough dry, barking, croupy and larynx sensitive to touch. It abates after eating or drinking, chiefly warm drinks.

(30) **Sticta.** Dry, hacking cough at night, worse on inspiration and towards evening, and when tired. Cough after measles.

(31) **Sulphur.** Loose cough, worse talking, in the morning with greenish, purulent, sweetish expectoration.

CHEST PAIN

Broadly speaking there are two types of chest-pain associated with respiratory diseases :

(a) Central retrosternal (behind the breast bone), pain of a sore, scratchy character made worse by coughing but not by deep breathing, and usually caused by inflammation of the trachea (tracheitis).

(b) Lateral (on the side or away from the mid-line) chest pain usually in the pectoral (pertaining to the breast) or axillary regions, but sometimes in the back, of a sharp, stabbing character, made worse by deep breathing and coughing and caused by inflammation of the pleura.

The second type of pain, which is referred to as *pleural* pain is of greater clinical importance than the first and is a common symptom of respiratory diseases. The pain is thought to be due to the stretching of the inflamed pleura surrounding the lungs. This pain is at its maximum at the end of inspiration. Patients with pleural pain try to minimise it by taking shallow breaths and suppressing cough as much as possible. Usually this pain is referred to the chest wall, but when the pleura, lining the diaphragm, is inflamed, it may be referred to the cutaneous distribution of the supra-clavicular nerves which have the same nerve roots as the phrenic nerve. Pain in the front and top of the shoulder is, thus, characteristic of "*diaphragmatic pleurisy*."

The *pleural rub*, which is a common physical sign in dry pleurisy, is due to the rubbing together of pleural surfaces, roughened by

fibrinous exudate. The effusion of fluid between the layers of the pleura diminishes this pain by reducing the movement of the chest wall and abolishes the pleural rub by separating the pleural surfaces.

Treatment :

The following remedies for chest-pain in general are suggested :

- (1) Belladonna.
- (2) Bryonia.
- (3) Causticum.
- (4) Drosera.
- (5) Eup. Perf.
- (6) Iodium.
- (7) Kali Carb.
- (8) Merc. sol.
- (9) Nat. Sulph.
- (10) Phos.
- (11) Rumex.
- (12) Silicea.
- (13) Sulphur.

DYSPNOEA

Normally breathing is the only involuntary act, which is carried out by the voluntary muscle. Dyspnoea is the subjective state in which the effort of breathing reaches consciousness, usually under circumstances in which a normal person should not be aware of breathing at all. Dyspnoea must be distinguished from *hyperpnoea* (panting), where the volume of ventilation is excessive for the circumstances but no abnormal sensation is felt, and *tachypnoea*, an excessive respiratory act.

Dyspnoea occurs as a symptom in a wide variety of diseases, and no single theory can adequately explain why it occurs. In conditions where airway resistance is high, such as, asthma or chronic

bronchitis, the increased mechanical work, needed to achieve a given volume of ventilation may account for it. A similar explanation may be given for the dyspnoea of diseases, causing lung stiffness, such as, pulmonary fibrosis, with the added factor that the hypoxaemia (diminished oxygen in blood) which occurs readily during exercise in such diseases, may increase the drive to breathe more. This explanation is less satisfactory for dyspnoea of heart diseases, and still less so far the dyspnoea found in anaemia, where both the lungs and the arterial oxygen pressure are normal.

In a mild lung or heart disease, dyspnoea is noticeable only on effort and the presence of dyspnoea at rest indicates that the disease is severe or advanced. In conditions, such as, chronic bronchitis, much of the respiratory reserve may have been lost, before a sedentary patient complains of dyspnoea and the measurement and ventilatory capacity shows that the irreversible airway obstruction is already established. Complaints of dyspnoea should, therefore, be taken seriously, for although the symptom is commonly found in anxiety states, it may occur early in diseases at a stage when abnormalities may not be apparent clinically or radiologically. Efficiency tests for the assessment of exercise capacity and pulmonary function are, then, of value.

Special types of dyspnoea :

(i) **Asthma.** This is paroxysmal dyspnoea. It is mainly expiratory and occurs mostly at night. Its causes are :

- (a) Bronchospasm,
- (b) Left-sided cardiac failure, and
- (c) Severe renal disease.

(ii) **Stridor.** This is a high-pitched, harsh, whistling, crowing or vibrating noise accompanying inspiration. It indicates laryngeal or tracheal obstructions.

(iii) **Cheyne stoke's respiration.** This is characterised by periods of apnoea (a transitory cessation of breathing) followed by a gradual increase in the depth of respiration without increase in rate, until the patient breathes normally and then there is again a

gradual decreasing depth, till apnoea occurs. It is chiefly found in cardiac failure and renal disease.

Treatment :

See "Asthma", "Laryngitis" and "Heart".

Besides these important symptoms there are a few others, which should be included for clinical purposes. These are :

- (i) haemoptysis,
- (ii) wheezing, and
- (iii) clubbing of fingers.

HAEMOPTYSIS

Haemoptysis of all grades of severity may occur from slight streaking of the sputum with blood, commonly seen in acute and chronic bronchitis, to a massive haemorrhage. Frank haemoptysis, however small, must always be regarded as of potentially serious significance and demands the 'fullest' investigations. Bronchial carcinoma, pulmonary infarction, bronchiectasis, pulmonary tuberculosis and mitral stenosis are the most common causes.

Treatment :

- General.* (1) The patient must be put to bed.
(2) Bits of ice are given to suck.
(3) The patient should be kept lying in bed.
(4) The cause should be investigated.
(5) No solid food should be given.
(5) Avoid hot and warm food.
(7) In serious cases blood transfusion be done.

Curative :

The chief remedies are :—Aconite Millefolium, and Ipecac.

(1) **Ipecac.** One of our best remedies in haemorrhages in incipient phthisis, when blood is bright-red and is accompanied by nausea.

(2) **Acalypha Indica.** No remedy equals this in haemoptysis. The blood comes with a gush after a fit of dry coughing; the breathing is hurried and the blood is bright.

(3) **Hamamelis.** Haemorrhage from any part of the body, especially lungs; best suited to passive venous haemorrhage, when the parts are sore and bruised and the patient is greatly exhausted by the flow.

(4) **Arnica.** Useful in traumatic haemorrhages.

(5) **Ferrum Met.** When blood is bright-red mixed with clots and gushing and there is much flushing of face.

(6) **Aconite.** Bright-red flow with anxiety and fever. But when there is no anxiety and no fever, *Millefolium* is the remedy.

(7) **Ustilago.** Should be prescribed when the bright-red blood is partly fluid and partly clotted. In suppressed menses, compare the following.

(8) **Arsenicum, Belladonna, Phosphorus, Senecio, Nux Vom., Sulphur.**

WHEEZE

In all forms of generalised obstructive respiratory diseases, particularly bronchial asthma, wheeze is usually a conspicuous symptom. It is a musical sound heard best during expiration, and is associated with numerous rhonchi on auscultation, Stridor, on the other hand, occurs when one of the major airways (larynx, trachea or main bronchus) is obstructed.

Treatment :

See "bronchitis" and "asthma" *Ipecac.* and *Antim Tart.* may be particularly noted for earlier stages.

CLUBBING OF FINGERS & TOES

The cause of clubbing, which is most readily recognised in the fingers is not known. But it is frequently found in patients with

certain types of respiratory diseases, notably, in lung cancer and chronic intra-thoracic suppurations, such as, in bronchiectasis, lung abscess and empyema. It does not occur in chronic bronchitis or emphysema, unless there is accompanying suppuration, nor in pulmonary tuberculosis except in advanced cases.

Clubbing also occurs in some other conditions. It is usually present in sub-acute bacterial endocarditis and cyanotic congenital heart disease. It is occasionally found in Crohn's disease, malabsorption syndrome and cirrhosis of liver and rarely in healthy subjects as a family trait.

The earliest indication of clubbing of fingers is an abnormal degree of fluctuation at the bases of the nails. With more advanced clubbing, there is, in addition, an increase of curvature of the nails, and the bulbous swelling of the finger-tips.

II—THE INVESTIGATION OF RESPIRATORY DISEASES

In most respiratory diseases, a reasonably accurate diagnosis can be made from the history and physical examination alone, but in several important conditions, notably pulmonary tuberculosis and bronchial carcinoma, these methods are inadequate and the diagnosis can be confirmed or excluded only by more specialised procedures, such as, radiological, bacteriological, or endoscopic examination. In taking the history, particular enquiry should always be made about symptoms of cough, sputum, haemoptysis, pain, breathlessness (dyspnoea), wheeze and nasal discharge. The patient should also be asked about any previous respiratory disease, about any family history of tuberculosis and about a history of occupational exposure to dust.

PHYSICAL EXAMINATION OF CHEST

Examination of chest should always follow the standard pattern of inspection, palpation, percussion and auscultation.

INSPECTION

Any abnormality of the skin should be noted. Papular or nodular lesions due to secondaries or 'reticuloses', such as lymphadenoma,

should be noted. Skin lesions, over the chest, however, are unlikely to have any association with lung lesions.

(2) Enlarged veins over the chest should never be ignored, as they are suggestive of vena cava (a vein which receives blood from the trunk of the body and lower extremities) obstruction.

Flattening of the chest :

This may be secondary to pulmonary disease or bony disease of the ribs or spine. Flattening of the chest, anteriorly or posteriorly over the upper or the lower zone or both, when secondary to pulmonary disease, indicates a chronic lesion, either a fibrosis or collapse of the underlying lobe.

Barrel deformity :

The '*barrel deformity*' of the chest is characterised by an increase in the antero-posterior diameter. The ribs and clavicles are more horizontal than normal. Such a deformity in chest is usually found with emphysema.

Pigeon chest :

A '*pigeon chest*' is characterised by marked prominence of the upper part of the sternum and adjacent costal cartilages. The lower sternum is usually prominent, but occasionally depressed. The ribs are usually unduly sloped. It indicates rickets, or chronic chest infection. Rarely it may be a congenital anomaly.

Funnel chest :

A depression of the lower end of the sternum, occurring without any other chest deformity, is often called a '*funnel chest*'. It is then, nearly always congenital, and is reputed to be associated with and perhaps due to a short central diaphragmatic tendon. The deformity is occasionally occupational e.g. in cobblers. If it is found in association with any other deformity, then the likely etiology is rickets.

Any deformity of ribs or sternum is likely to be associated with a spinal deformity and may also cause :

(1) Cardiac displacement,

(2) a systolic murmur over the praecordium which in itself is of no significance, and

(3) right-sided cardiac failure.

Chest expansion :

The degree of chest movement on deep breathing, to know whether or not it is symmetrical, should always be noted. Any disease of the underlying lung or pleura, will always interfere with chest movement of the affected area. In fact, the gross diminution of chest expansion may show the presence of emphysema and ankylosing spondylitis.

PALPATION

Palpation determines chest expansion by placing the observer's hand symmetrically on each side of the chest and asking the patient to breath deeply. Determining the position of the apex-beat on palpation must always be an important part of the examination of the chest, as the apex-beat may be shifted to the left with collapse or fibrosis of the left lower lobe or a right pleural effusion or pneumothorax and displaced to the right by a left pneumothorax or pleural effusion or collapse or fibrosis of the right lower lobe.

Position of the trachea :

The position of the trachea (whether it is deviated or not) should be determined, as it constitutes one of the most important clinical signs in chest diseases, for example, it may be the only clue to fibrosis of an upper lobe. The commonly advised method is the insertion of the index and middle fingers in the supra-sternal notch and then attempting to feel for a tracheal displacement.

Glands in the neck and axillae .

No examination of the chest can be complete without feeling for the glands in the neck and axillae. Enlarged glands in the neck, including the supra-clavicular regions are better felt for with the patient sitting up, and repeating the examination standing, in front of, then behind, the patient. The size, the consistency, discreteness or otherwise, the relative mobility, and involvement of the overlying skin should always be determined with any enlarged glands.

Breasts :

Examination of the chest in both men and women, should always include breasts to exclude a carcinoma. Any chest lesion may be secondary to this.

Vocal fremitus :

Vocal fremitus, the transmission of voice sounds felt by the examiner's hand, when the patient reiterates some such phrase as "99" or one, one, should be tested by comparing corresponding parts of the right and left side of the chest in rapid succession. The same hand should be used on both sides.

PERCUSSION

It is always better to percuss with the patient sitting up rather than lying down, because the latter position may produce false signs. Give only two taps and always compare the corresponding part of the chest on the opposite side. The note at the base of the lung, should never be compared with that over the clavicle. When percussing the chest, do not forget to percuss the axillae. The percussion over any given area may show increased or diminished resonance compared with the normal resonance in that area. Dullness indicates a definite pathology, but resonance does not imply the absence of pathology.

AUSCULTATION

On auscultation, the patient should breathe deeply, but not noisily, with his mouth open to minimize any sound produced in his nose, but not holding his breath at the height of inspiration and not attempting to force expiration. Coughing after deep breathing is often helpful, as it may bring out crepitations, not heard previously.

Classification of breath sounds :

There are two groups :

- (1) vesicular, and
- (2) bronchial sounds.

(1) **Vesicular Breath Sounds.** In a vesicular breath sound, the inspiratory sound is followed immediately without interval by a shorter expiratory sound. It resembles the noise made by wind rustling in the trees. The vesicular breath sounds should be heard frequently. They have several subdivisions as follows :

- (i) **Normal vesicular breathing** as described above.
- (ii) **Puerile vesicular breathing**, in which the breath sound is merely louder than the normal. This is found in children and the adults with thin chest wall. It is generally of no significance.
- (iii) **Harsh breath sounds**, a better name may be "*prolonged expiration*." It is found in patients with partial bronchial obstruction from bronchitis, asthma or any other obstructive lesion.
- (iv) **Cog-wheel breath sound**, which is a jerky interrupted breath sound. This is frequently heard in patients who are not breathing satisfactorily during auscultation due to nervousness or other causes. This type of breathing is heard in normal people and is of no significance.

(2) **Bronchial breath sounds.** The important difference between bronchial breath sounds and vesicular breath sounds is one of quality. A bronchial breath sound has a blowing quality and expiration is prolonged and there is a short gap between inspiration and expiration. It is important to note that it is the blowing element which is most essential of the three attributes described. Bronchial breathing is found over consolidation of lungs, but may also be found over a collapse and over an effusion or pneumothorax and over a cavity. Bronchial breath sounds are classified according to pitch, high pitched bronchial breath sounds being designated as *tubular*. Tubular breath sounds are noticed in consolidation of lungs and do not occur in any of the other conditions, named above. Low-pitched bronchial breathing is called '*cavernous breathing*'.

Broncho vesicular breath sounds :

This type of breathing is one in which although the quality of breathing is blowing and expiration is prolonged, there is no gap between the expiratory and inspiratory phases, as is found in true bronchial breathing. Broncho-vesicular sounds can normally be heard near the midline over the upper part of the chest, but elsewhere are pathological and their significance is the same as that of bronchial.

Adventitious breath sounds :

These may be aptly classified into

(a) pleural rubs,

(b) rhonchi, and

(c) crepitations.

(a) **Pleural rub.** A pleural rub is a squeaking sound like that produced by a new pair of shoes when worn. It is usually localised to a small area, is increased by the pressure of the stethoscope and does not disappear on coughing. It can usually be felt with the palm of the hand. In contrast, *rhonchi* are occasionally palpable, but when they are, it is over a larger area. *Crepitations*, however, are never palpable.

A pleural rub can be initiated by pressing the palm of one hand against the ear and slowly rubbing the back of that hand with the fingers of the other hand. A pleural rub indicates dry-pleurisy, which disappears with the development of effusion.

(b) **Rhonchi.** Rhonchi are continuous sounds which diminish on coughing and are audible during the greater part of inspiration and expiration. They are produced in the bronchi and indicate partial bronchial obstruction commonly due to bronchitis.

Rhonchi may be sub-divided into :

(1) **Sibilant rhonchi**, which are high-pitched and are heard when the smaller bronchial tubes are affected.

(2) **Sonorous rhonchi** are low-pitched sounds and are heard in the larger bronchial tubes. Rhonchi usually can be heard without a stethoscope and are also palpable.

(3) **Wheezing.** Some regard the description of a wheeze as a low-pitched rhonchus as incorrect and classify it apart from the other adventitious sounds. Wheezing can be heard without stethoscopic aid in patients with bronchospasm or any other obstruction to the main bronchus. Wheezing is generally difficult breathing with a whistling noise.

(c) **Crepitations.** Crepitations are interrupted sounds, heard mainly at the height of inspiration and the beginning of expiration and are accentuated by coughing. A crackling sound is best heard by rubbing together the hairs near your ear. Crepitations are produced by fluid in the alveoli, and therefore indicate a lung lesion. Crepitations, unlike rhonchi, are never palpable and are never heard by the unaided ear.

Crepitations are often divided into *coarse, fine, tinkling or metallic*. But this sub-division is a dangerous practice and is more likely to lead one astray than to be of help.

Rales. The use of this term has purposely been avoided here, the term is used generally for abnormal "moist sounds". One would ask "what is a moist sound in ordinary English?" If the word is at all used, it is imperative to define it exactly and state its significance.

Vocal resonance :

Vocal resonance is the same as vocal fremitus, but elicited on auscultation instead of palpation. Increased vocal resonance is referred to as bronchophony and when it is markedly increased, the voice sounds can be very well heard, when the patient merely whispers, this phenomenon is called, "whispered pectoriloquy". Aegophony is a bleating nasal quality to the vocal resonance, which is frequently heard over the upper limits of a pleural effusion and rarely over consolidation : Consolidation is usually associated with increased vocal resonance, and the same applies to cavitation. In the latter case whispering pectoriloquy may be heard

but this is not pathognomonic (characteristic of one disease), because it may some time be found over consolidation. In all other pathologies of lung and pleura, the usual finding is a diminution of vocal resonance. Such diminution is slight or marked.

SPECIAL METHODS OF INVESTIGATIONS

Radiological examination of the chest :

It is employed for a lesion of the lungs or within the thorax,

(1) when it is too small to be detected by physical examination (as in early tuberculosis or tumour),

(2) when its accurate assessment cannot be made by physical means,

(3) when more information is needed about the nature of the lesion,

(4) when accurate information regarding the size, shape and position of the heart is required,

(5) when evidence is needed in regard to a disease or injury sustained by the bony structure of the thorax.

Bacteriological and cytological examinations :

(i) **Sputum.** Bacteriological examination seldom provides conclusive evidence except when tubercle bacilli are isolated. The findings have to be interpreted in conjunction with clinical and radiological examination.

Cytological examination demonstrates cancer cells in the sputum and may help in the diagnosis of carcinoma of the lungs.

(ii) **Pleural Fluid.** This should always be examined cytologically and bacteriologically. The fluid may be serous or purulent. The serous fluid has to be examined for tubercle bacilli and the purulent for pyogenic organisms and tubercle bacilli. If the fluid is blood-stained, it should be examined histologically for cancer cells.

Serological Examination :

Estimation of the total and differential leucocyte count may help to distinguish pyogenic infection from tuberculous or viral infection.

Skin tests :

The tuberculosis and sarcoidosis tests may be of value. Prick tests are done for allergic diseases.

Laryngoscopy :

The larynx is inspected either by means of a mirror placed in front of the uvula or through an illuminated metal tube.

Bronchoscopy :

The trachea and the larger bronchi are inspected through an illuminated metal tube which also permits the removal of tissue for histological examination (bronchial biopsy).

Bronchography :

The bronchi are outlined by contrast medium, instilled into the trachea, and chest radiographs are then taken.

Lymph node Biopsy :

Histological examination of an enlarged lymph node removed from the neck or axilla, or from the mediastinum by the technique of mediastinoscopy, may provide a firm diagnosis in conditions, such as, bronchial cancer, tuberculosis, reticulosis and sarcoidosis.

Pleural biopsy.

In patients with pleural effusion it is possible to obtain a specimen of parietal pleura suitable for histological examination by means of Abrams pleural biopsy 'punch'. This process is simple and may be of considerable value, in determining the cause of a pleural effusion.

Lung biopsy :

When a diagnosis cannot be made in any other way, it may be necessary to obtain a specimen of lung tissue for histological examination either by formal thoractomy or by drill biopsy through the chest wall.

III—DISEASES OF THE RESPIRATORY SYSTEM

These may be divided into two groups :

- (a) The affections of the upper tract, viz. nose, throat, pharynx and larynx.
- (b) Those involving the thoracic respiratory tract, viz. bronchi, lung substance, and the pleura.

(a) DISEASES OF UPPER RESPIRATORY TRACT

(i) THE NOSE AND NASO-PHARYNX

EPISTAXIS

Definition :

Bleeding from the nose is called epistaxis and is a mere symptom of the different conditions of the nose. The source of bleeding is generally a small spot, called "*little's area*" on the front of the septum, just beyond the mucocutaneous junction of the nasal vestibule.

Etiology :

Epistaxis is usually due to :

(a) Local causes, such as :

- (i) superficial ulceration of the front part of the septum which may be a non-specific or a specific infection,
- (ii) mechanical injuries, a fall or blow upon the nose, or a fracture of the base of the skull,
- (iii) straining from coughing,
- (iv) new growths, as polypus ; or a malignant tumour or syphilis, etc. :
- (v) the presence of a foreign body in the nose.

(b) **General Causes.** These include hypertension, mitral stenosis, enteric fever, whooping cough, cirrhosis of liver, chronic nephritis, violent exertions and extremes of heat and cold, blood dyscrasia, acute infections, fevers, venous congestion of the neck and head, bleeding diseases and leukaemia.

Symptoms and signs :

(1) Generally one nostril bleeds, seldom both.

(2) The discharges are either through the nostrils, in front of, or backwards through the posterior nares, into fauces, thence into stomach or larynx. The phenomenon should not be confounded with the vomiting of blood or haemorrhage from lungs. A careful naso-pharyngeal examination will reveal the bleeding point.

(3) Sometimes bleeding brings relief to headache and congestive states.

Treatment :

The chief remedies are : **Ferrum Iodide** and **Millefolium**

(1) **Arsenic Album.** A very useful remedy in recurrent epistaxis with burning pains and irritability.

(2) **China Off.** Recurrent epistaxis, anaemic state, singing and ringing in ears ; great paleness and fainting. The patient wants to be fanned.

(3) **Trillium.** In nose-bleed ; especially suitable for women for bright red or dark and clotted flow.

(4) **Erigeron.** A specific in all forms of haemorrhages.

(5) **Pulsatilla.** Passive epistaxis, when the blood flows in place of menses.

(6) **Mercurius Sol.** Nose-bleed ; the blood coagulates in the nose and hangs down ; is dark, clotted and profuse.

(7) **Aconite** has anxiety and fever during nose-bleed with bright-red colour.

(8) **Millefolium** has no anxiety and fever and will be found more useful in epistaxis.

(9) **Bovista** is useful in epistaxis, if the flow occurs at night or early morning, and the surface of the body is puffy.

(10) **Crocus S.** Black, viscid flow with sweat on forehead.

(11) **Rhus Tox.** Bleeding from over-exertion at night, or during stools.

(12) **Thlaspi** is recommended as one of the most efficient remedies without indications.

(13) **Arnica.** Bright-red bleeding from external injury, or when preceded by crawling in the nose.

ACUTE SINUSITIS

Definition :

Transient inflammation of the lining of the nasal sinuses (hollow space or cavities) mostly due to infection of the upper respiratory tract is termed *sinusitis*.

Etiology :

This is in most cases, due to infection of the upper respiratory tract. If the infection is severe and the patient's resistance is inadequate, one or more sinuses may become acutely inflamed. Oedema of the lining membrane narrows the cavity, and the ciliary activity may fail to clear the sinus of inflammatory exudate. If the cavity becomes completely blocked, pus collects under pressure in the sinus.

The disease may also result from bathing in fresh water, when infected material is driven into a sinus and this often causes acute and dangerous frontal sinusitis.

Symptoms :

(1) Mild feeling of heaviness in the face and head, made worse by bending forwards and copious discharge from the nose.

(2) If the ostium (mouth of the cavity) is blocked, the pain becomes continuous and intense, while the nasal discharge diminishes.

(3) Often the infection causes toothache in the upper jaw on the affected side.

(4) Ethmoid (bony structure above the septum) and frontal sinusitis causes pain above, around and behind the eye and in severe infections, oedema of the lids may completely close the eye.

(5) On examination one finds tenderness over the inflamed sinus and pus in the middle meatus (channel) of the affected side and in the postnasal spaces.

(6) X-rays show thickening of the lining of the membrane and either a fluid level or, if the ostium is blocked, complete opacity.

Complications :

(1) Ethmoidal and frontal *sinuses* may lead to osteomyelitis of the frontal bone, meningitis, cerebral abscess, orbital cellulitis or cavernous thrombosis.

Treatment :

Catarrh of the frontal sinuses require :

- (1) Ammoniacum.
- (2) Iodium.
- (3) Kali Bich.
- (4) Natrum mur.
- (5) Phosphorus.
- (6) Kali iodide; Nitric acid (syphilitic taint).
- (7) Merc iodide.
- (8) Hepar sulph. (Pus)

ADENOIDS

Definition :

The naso-pharyngeal tonsil or adenoids is a collection or overgrowth of the lymphoid tissue on the posterior wall and the roof of the naso-pharynx, which normally atrophies and disappears in early life.

Etiology :

(1) Hypertrophy and infection of this lymphoid tissue commonly occurs during childhood as a result of repeated infection of the upper respiratory tract. In some children, this enlargement becomes permanent with resultant deleterious effects on the nasal passages, middle ears, pharynx and chest.

(2) Chronic hypertrophy and recurrent infection of the tonsils often accompanies these adenoid changes.

Symptoms :

(1) Blocking of nasal airway makes the child suffer from nasal obstruction and there is consequent mouth breathing.

(2) There is chronic nasal discharge and often associated sinusitis.

(3) Snoring and nocturnal cough are common.

(4) In some cases the voice becomes hoarse with a thick nasal intonation.

(5) In some cases adenoids affect the middle ear cleft.

(6) Recurrent acute otitis media is not uncommon.

(7) There is intermittent earache with variable conduction deafness.

(8) Persistent or recurrent bronchitis may be aggravated by adenoids.

(9) In older children adenoids, when associated with enlarged tonsils, interfere with the child's development.

(10) Adenoids can cause serious feeding difficulties with babies.

(11) The child is mentally dull and slow.

(12) Enuresis and night terrors may occur.

(13) The appetite is poor, and the child eats slowly.

(14) Disturbed sleep, the discomfort of nasal obstruction and sinusitis and impaired hearing make the child appear physically and mentally slow and unresponsive.

Treatment :

General : (1) Nasal wash with a good nourishing food, and

(2) Vitamin D food and other D products are useful.

Curative :

(1) **Hydrastis Can** is the first remedy to be tried, when the mucous membrane is yellow and there is excessive enlargement. **Hydrastis** with glycerine in the ratio of 1 : 6 may also be applied externally through nostrils.

(2) **Calcarea phos** is highly recommended by several doctors of repute, as it is highly efficacious in adenoid hypertrophy. If there is fever in adenoids, *Calc.* IODIDE may be used.

(3) **Baryta Carb** will be useful when tonsillitis is mixed with it.

(4) **Agrophis Nutans** obstruction of the nose from adenoids ; deafness, child breathes with the mouth open. This remedy will prevent surgery.

(5) **Tuberculinum** or **Bacillinum** may be used as an inter-current remedy once a week.

(6) **Cistus Can.** *Cistus* has a special affinity for the bad throat. It suits individuals with scrofulous or arthritic tendency and suffering from adenoids ; sensation of heat and dryness in throat makes the patient drink water for relief.

(7) **Baryta Iodide.** If the child is mentally weak.

COMMON COLD AND CORYZA

Allergic and Vasomotor (catarrhal) Rhinitis

(Common cold and Coryza)

Definition :

These two conditions are similar so far as the symptomatology is concerned. The Vasomotor or Catarrhal rhinitis is attributed to vasomotor imbalance (changes in the calibre of the blood vessels) and allergic rhinitis to a specific sensitivity reaction.

Etiology :

Common cold and coryza is usually communicated from person to person, especially during sneezing or coughing. The mucous mem-

brane of either nostril gets inflamed, primarily by a virus; secondarily by infective organisms, such as, *N. catarrhalis*, pneumococci, *H. influenza* and sometimes streptococci and staphylococci. Other exciting, local and general causes of cold are :

- (1) Chronic infections.
- (2) Structural abnormality.
- (3) Overcrowding.
- (4) Atmosphere with quick variation of temperature.
- (5) Smoke and dust.
- (6) Allergic rhinitis arises from sensitivity to house dust, pollens, fungal spores, proteins, dandruffs of animals, etc.
- (7) There is hereditary tendency also.

Symptoms :

(1) Both conditions produce triad of nasal obstruction, bouts of sneezing and excessive nasal discharge which is usually watery but occasionally thick and mucoid. Some patients suffer from conjunctival irritation with irritation and watering of eyes. Nasal mucosa is swollen and slightly bluish in colour.

(2) The early symptoms are chilliness, languor, muscular pains and slight fever.

(3) Or stuffiness and dryness of nose and soreness with frequent sneezing.

(4) Sense of smell and taste may be impaired.

(5) Nasal discharge, which is at first watery and profuse, becomes thicker later on.

(6) Often there is sore-throat, husky voice, dry cough, worse at night followed by high fever. Ordinary Rhinitis should be distinguished from allergic rhinitis. The latter occurs at all times of the year, and the former is due to nervous or local causes.

Complications :

The secondary affections may cause :

- (1) Sinusitis, frontal antrum and sphenoidal,

(2) Blocking of eustachian tubes, causing temporary deafness.

(3) And occasionally bronchitis and even broncho-pneumonia.

Treatment :

General : (1) The patient should be put to bed and isolated.

(2) As the nasal discharge of first two days is highly infective, the linen so used should be disinfected.

(3) The head should be kept warm. Ice and too much cold water forbidden.

Curative :

(1) **Aconite**. At the commencement of the disease when the patient feels that he is catching cold; dry state and no discharge; the nose is swollen from congestion; and is dry and stopped-up and this stoppage is apt to change from side to side with tingling and burning in nose and throbbing frontal headache; may be sneezing also, better in open air. There might be fever also. (*Camphor* is the first medicine to be tried.)

(2) **Nux Vom.** Also at the commencement, when the nose is dry or fluent throughout the day and stopped-up in the evening; rough scrappy throat with dry cold and constipated bowels. (*Ipecac*; if *Nux* fails).

(3) **Arsenic Alb.** For winter colds with thin, watery excoriating discharge with a feeling of nose being stopped-up. Sneezing does not relieve the throbbing frontal headache.

(4) **Arsenic Iodide**. (After meals) is indicated, when burning in nose and throat is marked.

(5) **Sinapis N** is indicated, when there is dryness and no discharge with heat in nose.

(6) **Allium cepa**. Profuse discharge of bland water from eyes with burning water from the nose indicates this remedy. Terrible laryngeal cough may also be present in some cases.

(7) Belladonna :

- (i) headache worse from motion or lying down; dull pain in frontal sinuses, cerebral excitement and swelling in throat are the chief symptoms.
- (ii) if recovery from catarrh has been 'impeded' by fresh exposure with pain over the eyes (right side) and face flushed.

(8) Mercurius Sol :

- (i) The discharge is thicker and acrid in character and is fully established and is aggravated in damp weather.
- (ii) Also when the discharge is thin and watery from damp, with soreness and rawness in the nose and throat.

(9) **Euphrasia**. Indicates discharge of burning water from eyes and bland, thin discharge from the nose.

(10) **Justicia** stands between *Cepa* and *Euphrasia* in cold.

(11) **Pulsatilla** is indicated in the advanced stage of cold, known as 'ripe cold'. The discharge is thick, yellow, mucopurulent and bland. This is relieved by cool air and aggravated by warmth; or when catarrh results from cold and the patient can neither smell nor taste, or if catarrh has been checked by fresh exposure.

(12) **Hydrastis** is similar to *Pulsatilla*, but there is more burning, rawness and constant desire to blow the nose, when cold has settled at the back of the nose and throat. *Pulsatilla* cold plus sneezing requires *Cyclamen*.

(13) **Camphor** should be given in the first and initial stage of cold, when nose is stopped-up and dry, and the inspired air feels cooler than usual. It is really indicated before *Aconite*.

(14) **Gelsemium**. This remedy can break-up a cold. It is indicated when there is congestion of head, 'hot' fever, and chilliness. The patient is dull and weak, and chill runs up and down the back with a watery, excoriating, or bland discharge from nose along with sneezing. *Cold brought on by warm relaxing weather* especially indicates it.

(15) **Natrum Mur.** Colds with watery, transparent discharges, causing blister-like eruptions about mouth and nose, which burst and leave thin crusts and scabs. Entire loss of taste or smell exists (sinusitis). The complaints are worse on going into open air, and on exertion; great dryness of posterior nares, watery, clear, frothy discharge from nose.

(16) **Sticta pul.** Constant desire to blow the nose, though nothing comes out; stuffed feeling at the root of the nose and dryness of mucous membrane.

(17) **Sanguinaria Nitrate** for acute colds with sneezing and profuse discharge in posterior nares.

(18) **Bellis P.** For exposure to wet and cold, when over-heated; or from iced-drinks.

(19) **Sulphur.** Loss of smell from cold, resulting in sinusitis (loss of taste with cold is *Puls*, and loss of smell and taste is *Mag Mur.*)

(20) **Lycopersicum** and **Acid Sarcolactic** are remedies for allergic rhinitis. *Pulsatilla*, *Natrum Mur.* with occasional doses of *Bacillinum* 200 may cure the allergic form.

IV—DISEASES OF LARYNX

Acute Laryngitis

Definition :

Acute laryngitis is the inflammation of mucous membrane lining the larynx, as a result of catarrhal infections, improper use of voice, alcohol or tobacco.

Etiology :

The affection occurs most often during the course of a cold, the inflammation spreading downwards from the nose and the nasopharynx. Over-use of the voice will precipitate an attack, especially if voice production is faulty. It arises during the course of acute infections fevers, such as, influenza, measles or scarlatina. Predisposing causes are nasal

obstruction, infection of sinuses, tonsils or teeth, and sedentary occupations in ill-ventilated overheated rooms. Acute laryngitis is not uncommon in patients with pulmonary tuberculosis.

Symptoms & Signs :

(1) These consist of hoarseness, local discomfort varying from dryness, or tickling to a burning sensation or actual pain and irritating cough.

(2) There is little expectoration, unless trachea and bronchi are involved.

(3) There may be slight fever and malaise, at the onset.

(4) In children acute laryngitis is a serious affection ; they show a far greater tendency to oedema and to spasm and as the glottis is relatively worse than in adults, dangerous dyspnoea may ensue with greater rapidity ; the epiglottis and the vocal cords are reddened ; a small amount of mucus secretion is generally present.

Complications :

Inflammation of trachea is a frequent complication.

Differential Diagnosis :

It is to be distinguished.

(1) from tubercular laryngitis in which pulmonary symptoms are present, and

(2) from chronic laryngitis, in which there are large accumulations or strings of mucus.

CHRONIC LARYNGITIS

(Clergyman's Sore-Throat)

Definition and Etiology :

Chronic laryngitis is the result of recurrent or persistent acute attacks. The principal factors, favouring chronicity are :

(1) nasal obstruction,

(2) chronic tonsillar sepsis,

(3) dusty occupations,

- (4) lack of fresh air,
- (5) overuse of voice and faulty voice production,
- (6) abuse of alcohol or tobacco consumptives are particularly liable to non-specific catarrhal laryngitis,
- (7) any cause of general ill-health, such as gout, rheumatism, anaemia, and gastro-intestinal, cardiac and hepatic disorders, and
- (8) dental infections.

Symptoms and Signs :

(1) Symptoms consist of hoarseness, inspairment of voice, sometimes it is completely lost. It is sometimes weakest, when tired in the evening, but is often at its worst on rising in the morning ~~or~~ after rest.

(2) There is frequently a sensation of aching dryness, tickling, ~~or of a lump~~ in the throat.

(3) There is some cough, but little expectoration.

(4) Larynx is generally of a deeper red colour than usual and the vocal cords are pink, or grey with thickened edges.

(5) Between the cords, there may be a sticky secretion.

(6) Adduction of vocal cords is frequently imperfect.

(7) Mucus membranes are thickened and relaxed on the adduction of the cords.

(8) Singer's nodes are small swellings on the middle third of the vocal cord which cause persistent hoarseness.

(9) A condition known as Kerotosis laryngitis can in many cases persist for years.

Treatment :

General : (1) Talking should be restricted.

(2) The patient must be kept in bed in a warm room and be allowed to inhale steam.

(3) In a chronic case, the patient should be instructed how to use the voice correctly and cold water applied to the neck night and morning.

(4) In croup, apply cloths, wrung out of hot water, to the neck and have hot foot-bath.

Curative :

Acute Catarrhal Laryngitis :

(1) **Aconite.** To be used at the commencement. When there is fever, chilliness, dry hot skin, and hoarseness. The patient awakens at night with a croupy cough and during every spell the patient grasps his throat.

(2) **Spongia.** Mostly it follows *Aconite* when the respiration sounds like a saw driven through a pineboard. The patient throws his head back to breathe.

(3) **Aesculus Hip.** A very useful remedy in catarrhal laryngitis and pharyngitis.

(4) **Belladonna.** Has dryness, constriction and soreness in larynx with the onset of violent fever and a flushed face. Talking is painful and the voice is husky and hoarse.

(5) **Hepar Sulph.** Laryngitis (both acute and chronic) due to exposure to dry, cold winds, croupy cough, and hoarseness, worse in the morning. The patient is very sensitive to the slightest draft. The larynx is painful and dry. It generally follows *Spongia* and is very useful for singers.

(6) **Sambucus Nigra.** Used for suffocative attacks in spasms of the larynx (Spasmodic Laryngitis), when oedema is present and inspiration greatly impeded (if oedema glottis intervenes, *Apis* should be used).

(7) **Phosphorus** is used for the hoarseness that remains after the attack and the relapse that may occur.

(8) **Lachesis** is to be used when the patient is extremely sensitive to the touch of the throat.

(9) **Iodine.** Dry, short barking, cough, with wheezing, sawing respiration, dyspnoea and imminent suffocation. The cough may become muffled and indistinct. Use IX dilution ; three drops every 15 minutes, if given in the beginning, may cut short the attack. It also acts when the exudation has taken place. Hence it is useful both in acute and chronic cases.

Chronic Catarrhal Laryngitis including Aphonia

(1) **Bromine.** The child suddenly rouses from sleep, as if choking and water relieves spasmodic condition. The breathing is hoarse, rasping, whistling and rattling. The larynx is full of phlegm during coughing. There is marked prostration.

(2) **Argentum Metallicum.** It has burning and rawness in the larynx, worse from talking and using the voice. It is useful for an alteration in the timber of the voice in singers and speakers. It has copious exudation in the larynx looking like boiled starch which is easily hawked up.

(3) **Phosphorus.** Evening soreness and dryness in the larynx are characteristic. Talking tires and hurts the larynx. There is soreness in the larynx (*Causticum* has soreness under the sternum). It is useful in *paralytic aphonia*.

(4) **Carbo Vegetabilis** is suitable when hoarseness is brought by damp cold air and is painless.

(5) **Ipecac** is useful in complete aphonia from cold or congestion of vocal cords. Use 30th potency every half an hour, until relieved.

(6) **Kali Bich.** This remedy is useful, when the cough is metallic, the fauces and tonsils are red and swollen, breathing is laboured and the larynx, is sensitive. The tendency is towards croupous bronchitis with violent wheezing and tough and stringy mucus.

(7) **Lachesis** should be used when the spasm of the throat is very severe.

(8) **Sanguinaria.** Dryness and burning are the keynotes of this remedy in croup with a swollen feeling in the throat and a wheezing and whistling croupy cough.

(9) **Kali Mur** is a very valuable remedy in 'Croup' when the expectoration is gray fibrinous slime. The cough is dry, hard, croupy, harsh and barking. It may be alternated with *Fer. Phos.*

(10) **Merc. Sol.** is generally a specific in hoarseness. It may be given twice a day.

(11) **Senega.** It suits sudden aphonia accompanied by accumulation of mucus in the chest which is difficult to raise.

(12) **Sulphur.** For chronic cases with morning loss of voice, following suppression of eruptions ; voice harsh, hoarse and deep.

(13) **Selenium** will also clear the voice.

LARYNGEAL TUBERCULOSIS

Definition :

This disease is secondary to open pulmonary tuberculosis, and is due to direct infection of the laryngeal mucosa by the sputum.

Etiology :

(1) Laryngeal tuberculosis is secondary to pulmonary tuberculosis.

(2) The infection is usually conveyed by the sputum from the lungs.

The disease is more common in men than in women and is frequent between the ages of 20 and 40. Women working in offices and factories are as susceptible as men.

Symptoms and Signs :

(1) The earliest symptom is weakness of the voice, which may be attributed to functional aphonia.

(2) Ulcers are shallow with a smooth base and pale, ill-defined margin.

(3) Later there is marked hoarseness with severe pain on swallowing.

(4) Cough with expectoration is not due to larynx, but to the lung disease.

(5) Pain in swallowing is common and often intense ; there may be obstruction to swallowing.

(6) Occasional dyspnoea.

Diff. Diagnosis :

The disease is to be distinguished from :

(a) **Simple laryngitis** by the redness of one cord only, and the inflammation of the entire larynx.

(b) **Syphilitic laryngitis** by the tuberculous ulcer having an ill-defined margin without the surrounding hyperaemia. The syphilitic lesions attack the anterior half of the larynx, and the tuberculous, the posterior. The former looks firm and dense and the latter soft and ill-defined.

(c) **Tumours.** A large tubercleoma rarely resembles a tumour. Only presence of tubercle bacilli in sputum will clear the diagnosis.

Prognosis :

Cases with massive infiltration rarely recover, unless the malady is confined to the epiglottis. A considerable number of superficial lesions, however, heal.

Treatment :

(1) **Spongia.** For tubercular laryngitis. The cough is dry, barking and croupy with suffocative spells, burning, stinging in larynx and painful swallowing.

(2) **Drosera** is useful when there is great hoarseness, tough mucus, spasmodic cough after midnight. Besides, the voice and the cough have a trumpet sound.

(3) **Verbascum** is similar to Drosera, but it extends lower than the larynx.

(4) **Chlorine** is specific for oedema of glottis, the part of the larynx which is associated with voice productions (*Apis* is also a usual remedy).

(5) **Arsenicum** is also useful in tubercular laryngitis with ulceration and burning.

CARCINOMA OF THE LARYNX

Definition :

Carcinoma of the larynx is a new growth or a tumour of the vocal cord. The middle-aged or the elderly men are the usual victims.

Etiology :

In many cases there is no obvious causative factor, but it may develop in a larynx which is already the site of chronic inflammation, and the early diagnosis of a malignant change may be particularly difficult in these cases.

Histologically these growths are squamous-cell carcinomata with a wide degree of differentiations. The commonest site of origin is the anterior half of one vocal cord but sub-glottic and supraglottic growths also occur.

Symptoms & Signs :

The dominant symptom is hoarseness of voice. Besides, there is slight discomfort in the throat made worse on swallowing repeated 'clearing' of the throat and plumminess of the voice.

As the growth develops, it causes respiratory obstruction. Pain in the ear is another late symptom. A lump in the neck may be present sometimes. The diagnosis is made by hoarseness, dysphagia, numb sensation in the pharynx and by laryngoscopic examination.

Treatment :

Benign growths. (1) Causticum.

(2) Kali Bromatum.

(3) Sanguinaria.

(4) Thuja :

Malignant growths. (1) Ars. Alb.

(2) Carbo animalis.

(3) Conium.

(4) Phytolacca.

(5) Thuja.

(6) Baryta Carb.

ACUTE LARYNGO-TRACHEO BRONCHITIS

(Croup)

Definition :

This is a serious infection of the respiratory tract affecting children under 2 years of age and usually occurring in the winter months.

Etiology :

The infection, probably is of viral origin with secondary bacterial invasion. The main pathological changes are—marked oedema of the larynx, trachea and bronchi and the production of especially viscid bronchial secretion which is difficult to expel.

Symptoms :

The onset is often sudden so that the child may be seriously ill within a few hours of commencement of disease. The initial symptoms are general malaise and a weak croupy cough. Respiratory embarrassment soon develops, the breathing is rapid and difficult and the child becomes prostrated. Fever is not marked, but the pulse is rapid and weak, and there is marked general muscular weakness. Slight cyanosis is followed by greyish pallor, and increasing toxæmia and anoxia reduce the respiratory efforts to a minimum.

Prognosis :

If the child survives the critical period as it should under the homoeopathic treatment, during the first 2—3 days of the disease, gradual recovery takes place during next week or so.

Treatment :

See "Croup" in homoeopathic books also. For *Spasm* select from :

- (1) Bell,
- (2) Aconite,
- (3) Cuprum,
- (4) Gels.,
- (5) Lachesis,
- (6) Rhus Tox,
- (7) Calc. Carb,
- (8) Moschus.

STRIDOR IN CHILDREN**Definition :**

This is a momentary attack of sudden spasm of the muscles of the larynx without fever, occurring in infancy.

Etiology :

This alarming symptom which is common in infancy arises from a variety of causes :

(1) **Constant stridor from birth.** This is due to a congenital abnormality of the larynx. Laryngeal webs and cysts cause inspiratory and expiratory stridor and occasionally are large enough to be removed surgically.

(2) **Stridor associated with exertion.** Some infants whose respiration is quiet at rest, develop stridor, mostly inspiratory when crying or exerting themselves. The symptom becomes worse by respiratory infection and causes much concern.

As the child grows, the larynx enlarges and muscular tone improves, the stridor disappears by the age of 3 years.

(3) **Stridor associated with acute infection.** The infantile larynx is relatively smaller than the adult and is subject to oedema and spasm during acute inflammation. Therefore the stridor is not uncommon in infants during any respiratory infection or exanthema. There are two acute conditions of serious nature :

- (1) Acute laryngo-tracheal bronchitis, and
- (2) Laryngeal diphtheria.

OEDEMATOUS LARYNGITIS

(Oedema of Larynx)

Definition :

Oedema of the larynx is a pathological condition due to various causes. It may be mentioned here that *non-inflammatory oedema* also occurs as part of the general dropsy of renal or cardiac disease. Another variety of oedema is *angioneurotic oedema*, which sometimes occurs in the larynx, in which event it produces rapid and sometimes fatal dyspnoea.

Etiology :

(1) Inflammatory oedema seldom results in adults from a simple catarrh, but it may do so among children.

(2) It often occurs as part of an acute infection of the pharynx, trachea and bronchi.

(3) Oedema may follow various forms of trauma, the drinking of corrosive poisons, inhalations of irritating vapours, the lodgement of foreign bodies or rough and prolonged bronchoscopy.

(4) Scalding from attempts to drink from a kettle-spout is a common cause among children.

(5) In other cases, it is a sequel of typhoid fever, pneumonia, scarlet fever or small-pox, and a local complication of syphilitic, tuberculous, cancerous or traumatic ulceration.

Symptoms :

(1) If it is a part of septic pharyngo-laryngitis, the general symptoms are severe.

(2) The chief local symptom is dyspnoea with stridor.

(3) Hoarseness or aphonia, local tenderness and sometimes dysphagia is there.

(4) Epiglottitis is occasionally swollen.

(5) The mucosa of the vocal cords is too adherent to permit much swelling, and so "*Oedema of the glottis*" is a misnomer.

Treatment :

Apis 3X is the best remedy.

PARALYSIS OF THE VOCAL CORDS

(Laryngeal Paralysis)

Definition :

A complete loss of nervous function brought about by the organic or functional paralysis of the vocal cords is termed "Laryngeal Paralysis"

Etiology :

(1) The organic paralysis of the vocal cords results from a lesion of the *vagus* or *recurrent laryngeal nerve* and may be unilateral or bilateral. The *vagus* may be affected in the brain stem, the posterior fossa, the base of the skull or upper cervical region. The recurrent laryngeal nerve may, however, be affected in the lower cervical region and on the left side in the thorax as well. A lesion in the brain stem, posterior fossa or base of the skull is likely to involve other cranial nerves besides the *vagus*, particularly the 9th, 11th and 12th nerves.

(2) The paralysis in the brain stem and posterior fossa is caused by either a virus or bacterial infections, particularly neurosyphilis, vascular accidents, degenerative and demyelinating diseases or neoplasm.

(3) Either recurrent laryngeal nerves may be affected in the neck by penetrating wounds, thyroid surgery and *thyroid* or *other* tumours, while the left recurrent laryngeal nerve may be damaged in the thorax by bronchial or oesophageal carcinoma, mediastinal tumours or aneurysms.

Clinical Features :

Hoarseness always accompanies the laryngeal paralysis, whatever be its cause. Paralysis of organic origin is seldom reversible. But when one vocal cord is affected (unilateral), hoarseness may not only improve, but even disappears after a few weeks. There is "Bovine cough" if the cords fail to close the epiglottis. Dyspnoea and stridor are occasionally present but are seldom severe. Laryngoscopy is necessary to establish the diagnosis of laryngeal paralysis with certainty.

Treatment :

- (1) Arnica (overexertion or trauma).
- (2) Causticum (simple catarrhal cases).
- (3) Gelsemium (loss of voice at menstrual periods).
- (4) Oxalic acid (paralysis of vocal muscles).
- (5) Baryta Carb. (chronic cases).

DIPHTHERIA**Definition :**

Diphtheria is a bacterial disease caused by the Klebs-Loeffler bacillus (*Corynebacterium diphtheriae*), characterised by membranous exudate at the site of infection, which is later followed by distant toxic effects, the chief being circulatory failure and paralysis.

Etiology :

The causative organism, bacillus *C. diphtheriae*, is a slender Gram-positive non-motile, non-sporing, rod which tends to appear segmented or clubbed. In simple language, these bacteria are incapable of spontaneous movements, are club-shaped and frequently beaded in appearance. The infection is carried by the infected person to another, either directly or by droplet infection during kissing, sneezing or coughing or indirectly through food or drink, by sputum getting into children's milk, feeding utensils, towels, clothes or toys.

Symptoms and Signs :

(1) The incubation period is commonly between 2 to 5 days with extremes of 1 to 10 days.

(2) The fauces are most often the site of a diphtheritic infection, and as absorption of toxins takes place much more rapidly than from other sites, "*faucial diphtheria*" is usually associated with most toxæmia. Diphtheritic membrane may be found in the nose (anterior nasal diphtheria) or in the nasopharynx, (Naso-pharyngeal) or in larynx (Laryngeal diphtheria). Nasal and faucial, or faucial and laryngeal diphtheria not infrequently coexist.

Anterior Nasal Diphtheria :

(1) This type is seldom serious to the patient.

(2) The onset is insidious with minimum discomfort and fever.

(3) The membrane is confined to the front of the nose on the nasal septum.

(4) The characteristic signs are a profuse thin blood-stained serous nasal discharge with small ulcers appearing at the anterior nares and extending on to the upper lip and cheeks.

(5) Little toxin is absorbed and myocarditis and paralysis are accordingly rare.

(6) With treatment the patient soon recovers.

Posterior nasal (Naso-pharyngeal) Diphtheria :

(1) This type is serious and similar to faucial diphtheria with which it is generally associated.

(2) There may be considerable membrane formation in the nasopharynx hidden behind the palate. That is why this form is dangerous.

Faucial Diphtheria :

(1) The onset is insidious, particularly in children who become quiet and refuse their food.

(2) Lassitude, mild headache, malaise, and sore-throat, are associated with a mild degree of fever (101°F).

(3) Membrane is not present at the onset, but may be extensive within 24 hours.

(4) The membrane begins on one or both tonsils and may spread on to the pillars of the fauces, the uvula and the palate ; it may be thick or thin, yellowish, greyish or creamy in colour.

(5) Foetor is often striking and characteristic.

(6) A serous and blood-stained nasal discharge appears later in many cases.

(7) Drowsiness, vomiting, pallor or tachycardia are signs of early toxicity. The severity of faucial diphtheria is related to the extent of membrane and cases are classified as :

- (i) moderate,
- (ii) mild, and
- (iii) severe.

Laryngeal Diphtheria :

(1) This type is rare over the age of 5 years. The illness is one of progressive laryngeal obstruction with relatively little toxæmia unless associated with faucial diphtheria.

(2) The membrane may spread down to the trachea into the major bronchi.

(3) The symptoms of croup-hoarse voice, inspiratory stridor and croupy cough appear.

(4) Restlessness, pallor and cyanosis and asphyxia take from 24 hours to a few days to develop.

(5) In rare cases, membranous casts are coughed up with relief of symptoms.

Other sites :

Cutaneous diphtheria is rare and usually due to infection of an existing wound, ulcer or skin lesion. Their diphtheritic nature remains unsuspected, until peripheral neuritis appears.

The conjunctive, middle ear, umbilicus in the newborn and genital mucous membrane are rare sites of diphtheritic infection.

Complications :

The chief complications are *cardiovascular* and *paralytic*. These complications are related to the virulence of the infecting strain.

(1) **Acute circulatory failure**, is the commonest cause of death.

(2) **Peripheral neuritis** of the limbs and trunk occurs from the 4th week onwards.

(3) **Respiratory failure** seldom occurs before the sixth week.

(4) **Albuminuria** is heavy in severe cases.

(5) **Bronchitis, Bronchopneumonia** and **atelectasis** may arise.

Diff. Diagnosis :

Diphtheria has to be distinguished from the following diseases :

(1) **Tonsillitis**. In which there is no membrane and which causes more pain in the throat and difficulty in swallowing.

(2) **Ulcerated sore-throat**. There is no prostration, and nothing of the peculiar odour of diphtheria.

(3) **Mumps**. There is no rattling in breathing or croupy cough in mumps.

(4) **Measles**. There are no throat symptoms in measles, or discharge from nose. The rash commences from the forehead and then spreads over the whole body.

(5) **Croup**. Starts from the larynx and then spreads downwards but not upwards.

Prognosis :

The following are unfavourable signs :

(1) Development of diphtheritic croup.

- (2) Hæmorrhage from nose and mouth.
- (3) Albuminuria, diarrhoea and vomiting.
- (4) Convulsions.
- (5) Complications with measles and small-pox.

Treatment :

General : (1) As a prophylactic, *Apis* or *Diphtherinum* 30 should be given in weekly doses.

- (2) Isolate the patient in the upper story.
- (3) Disinfect everything.
- (4) Let the patient inhale steam or use bits of ice.
- (5) The food must be liquid and highly nutritious, particularly milk. Give these in small quantities at regular intervals day and night.
- (6) If the patient cannot swallow, give food by Ryle's tube.
- (7) Stimulants, like brandy, are required for prostration, and heart failure.

Curative :

(1) **Mercurius Cyanide and Diphtherinum** are two good remedies at the commencement, which should be prescribed in high potencies in malignant types. The indications for the first are :

- (i) great sudden prostration and very high pulse; the weakness is so extreme that it amounts to a collapse,
- (ii) exudation in the throat is at first white, but it may turn dark and become gangrenous,
- (iii) the tongue is brownish, blackish with foul odour from the mouth,
- (iv) nose-bleed,
- (v) loss of appetite,
- (vi) profuse flow of saliva. *Diphtherinum* is useful in paralysis following diphtheria.

(2) **Apis Mel.** is chiefly indicated, when we see oedema, stinging pain, sore and blistered tongue ; throat glossy-red, as if varnished. The membrane is grayish on either tonsils. Swallowing is most difficult owing to oedema, which affects externally also ; much prostration and restlessness. Scanty urine is an essential symptom.

(3) **Kali Bich.** Suitable for croupoid form, when

- (i) the tongue is coated yellow, or it is dry red,
- (ii) there is deep ulceration, and tenacious exudation, often with streaks of blood on the tonsils,
- (iii) pain in chest, extended to neck and shoulders,
- (iv) swelling of glands.

(4) **Lachesis** is a left-sided remedy. Its characteristics in diphtheria are :

- (i) great sensitiveness of throat,
- (ii) membrane appears first on the left, and then spreads to the right,
- (iii) extremely painful swallowing ; worse from empty swallowing,
- (iv) violent prostration and offensive smell from the mouth,
- (v) the patient sleeps into aggravation of all symptoms,
- (vi) dyspnoea and so the patient sits up to breathe,
- (vii) gangrenous and septic conditions,
- (viii) purplish throat and much swelling externally and internally.

(5) **Carbolic Acid and Baptisia** will counteract septic poisoning. You have, however, to look for other symptoms.

(6) **Bromine** applicable in laryngeal diphtheria, when there is :

- (i) rattling of mucus,
- (ii) suffocating, hoarse and whistling cough having a barking sound.

(7) **Muriatic Acid.** In later stages, when there is extreme weakness, and haemorrhage from the nose with foul breath and oedematous uvula, a yellowish grey deposit on tonsils and pharynx; pulse intermittent and tongue dry ; lips dry and cracked.

(8) **Lac. Can.** When the symptoms are changing sides with restlessness of *Arsenic* and *Rhus*. (Nervous restlessness being a symptom of *Apis*) ; scanty urine is also a symptom.

(9) **Nitric Acid.** Chief symptoms are :

- (i) much distress at the stomach and vomiting of all food,
- (ii) nasal diphtheria with prostration; a white deposit in the nose,
- (iii) foetid odour and sticking and splinter-like pains in throat, which make swallowing difficult.

(10) **Phytolacca.** As the disease commences, there is great burning and chilliness in throat, highly inflamed throat, much swelling up to ears, thickly-coated tongue, foetid breath, swollen glands, rapid, weak pulse, greyish membrane, pain in back and limbs and general aching. The use of this medicine both internally and externally (gargle) is recommended.

(11) **Arsenicum Alb. ;**

- (i) Low fever, complete prostration, restlessness, thirst and foul breath,
- (ii) useful only in later stages, when the patient is declining,
- (iii) throat much swollen in and out,
- (iv) dark membrane.

(12) **Arsenic Iodide** is useful in post-diphtheritic conditions.

Other remedies are *Arum Tri.*, *Bryonia*, *Cantharis*, *Lachesis*, *Rhus Tox* and *Zincum*.

WHOOPIING COUGH

(Pertussis)

Definition :

Whooping cough is an acute specific infectious disease characterised by a series of paroxysmal attacks of coughing followed by a sudden forceful inspiration (the whoop), and sometimes by vomiting.

Etiology :

The basis of this condition is respiratory catarrh, and the bacterial infection, responsible for it, is *Bordetella Pertussis*. Until recently the species was included in the genus *Haemophilus*. The organism grows best on media containing blood and is conveyed to a healthy person by droplet infection from the sputum of a patient. Occasional attacks may be caused by another related organism *B. Bronchiseptica*. The mild missed case is often responsible for spread of the disease.

Permanent immunity from a second attack usually follows the first attack, though a few cases of recurrence have been noticed. The incubation period is from 7 to 10 days. Children below 5 years are, in 90% of cases, affected.

Symptoms :

(1) The first stage, the catarrhal stage, starts with fever, coryza, sneezing, acute bronchitis, and distressing cough at night, lasting from 3 or 4 days to one week.

(2) Cough, in paroxysms, is often followed by vomiting.

(3) **The second or paroxysmal Stage.** Whoop begins after fever subsides in the second week in rapid succession.

(4) Paroxysms of 2 to 3 minutes with suffocation and vomiting of food taken, with a characteristic whoop leading to the expulsion of a viscid mucus follows. These paroxysms may continue from three weeks to two months.

(5) The skin is covered with perspiration during a spell.

- (6) At the end of the spell, the child is thoroughly exhausted.

Signs :

- (1) Face becomes congested and cyanotic after paroxysms.
- (2) Tongue protrudes with each cough, while large amounts of mucus are coughed-up, swallowed or vomited.
- (3) Congestion of neck and scalp veins follows.
- (4) May be associated with bronchitis, broncho-pneumonia, or emphysema.
- (5) Mild cases with no whoop may terminate in a week or ten days; while the paroxysmal variety may continue for 3 weeks or months.

Diagnosis :

Is made from the typical whoop and the presence of the *Bordetella-pertussis* infection from a pre-nasal swab or cough-plate containing these germs. It should be differentiated from *laryngeal spasm*, *adenoids* and *tuberculosis* of the mediastinal gland by the peculiar cough ending in vomiting.

Complications :

- (1) **Broncho-pneumonia** is the most important complication.
- (2) **Emphysema**.
- (3) **Hyperaemia and oedema of brain** and its membranes. Convulsions are common among infants.
- (4) **Bleeding from nose**, or any part of the respiratory tract in the retina, or from ears may occur.
- (5) **Vomiting, malnutrition and dehydration** may follow.

Prognosis :

Mostly infants below one year of age are badly affected. The rest improve and are usually able to tide over the crisis. Mental symptoms and consequent convulsions are mostly unfavourable cases.

Treatment :

General : (1) The child should be segregated for at least 4 weeks.

(2) Plenty of fresh air and light must be allowed.

(3) Avoid mental excitements, overloading of stomach, cold draught and crying.

(4) All the inmates of the house should take *Drosera* 6 morning and evening, when the disease breaks out in a family.

Curative :

(1) **Antim Tart.** Much rattling of mucus with slight expectoration, irritable and cross ; child cries, tongue white : weakness; sometimes diarrhoea with debility and depression, or vomiting shortly after midnight; marked aggravation from warm drinks; cough ends in vomiting.

(2) **Belladonna.** Cerebral congestion and sudden violent spells of whooping cough with expectoration; epistaxis may exist; worse at night; suitable in initial stages, when fever sets in. Attacks terminate in sneezing ; cough excited by tickling in throat; retching and vomiting and pain in stomach ought to be there along with suddenness, congestion and a frightened condition.

(3) **Cina.** An excellent remedy for whooping cough, indicated when paroxysms are over, there is a clucking sound in oesophagus. The child also stiffens. Grinding of teeth during sleep, especially when worms are present.

(4) **Coccus Cacti.** Paroxysms come in the morning, vomiting of a clear ropy excessive mucus extending in thick long strings ; cough is followed by eructations of wind ; useful for bronchial catarrh after whooping cough ; choking is most characteristic.

(5) **Corallium Rub.** For severe cases, when a smothering sensation precedes cough, the child gasps and becomes black in face, short quick ringing cough, the neurotic element should be present along with constriction of chest before the attack.

(6) **Cuprum.** Paroxysms are long and interrupted and are accompanied with convulsions ; violent cough. The child throws

out tough, gelatinous mucus with rattling in chest, face and lips bluish ; great relief from swallowing cold water ; clenched hands and muscular spasms.

(7) **Drosera.** A barking cough in such frequent spells as to choke breath ; raising of phlegm ends in retching and vomiting ; attacks worse after midnight ; the patient cries and holds his epigastrium, while coughing. *Drosera* acts best in pure uncomplicated cases of whooping cough.

(8) **Ipecac.** Convulsive cough where the child stiffens and becomes blue and loses his breath ; nausea and relief from vomiting ; a gagging cough ; the discharge is copious and tenacious. The patient is very weak after the attack. Cough spells follow each other in quick succession and do not permit recovery of breath ; free perspiration.

(9) **Kali Bich.** Suitable for hoarse cough ; the child breathes superficially and rapidly to prevent attacks, worse from eating and inspiring deeply ; general catarrhal involvement of nose, throat and frontal sinus ; expectoration is yellow, tough and stringy ; Cough is coarser and tough (not loose like that of *Hepar*).

(10) **Magnesia Phos.** Attacks are convulsive, nervous, ending in whoop ; severe paroxysms with blue swollen and livid face and a severe whoop are the characteristic symptoms.

(11) **Mephitis** is very useful in cough of laryngeal origin with a whoop ; cough worse at night on lying down ; there is a suffocating feeling and the child cannot breathe out ; catarrhal symptoms are little, but the whoop is there. Smothering and suffocation is with the cough and not before it. Exhaustion follows the attack. Cramping of legs at night.

(12) **Naphthalene** is suitable for whooping cough of adults, when, cough is dry and there are few catarrhal symptoms, but paroxysms are long.

(13) **Other remedies may be :** *Castanea ves.* ; *Chelidonium* ; *Pertussin* (*Cocqueluchin*) ; *Solanum Car* ; *Ambra Grisea*.

TRACHEITIS

Definition :

Tracheitis is the inflammation of the mucus membrane of the windpipe (Trachea). This is either of a simple catarrhal type or of a severe destructive nature. The inflammation usually reaches trachea from the upper respiratory tract, and may travel further downwards to the bronchi to cause *tracheo-bronchitis*. In simple catarrhal type, the membrane is swollen and congested. In the severe type, the membrane is damaged with ulceration.

Etiology :

(The further down the bronchial tree the main impact of the infection lies, the more severe the illness becomes). Viruses are the most common cause. The primary invaders are the rhinovirus, the influenza and the para-influenza viruses. In children, the acute tracheo-bronchitis may be a feature in measles and pertussis (whooping cough). Less commonly it is found in typhoid and diphtheria.

Both acute tracheitis and bronchitis are common disorders which most frequently affect children and the aged and males more frequently than females. They are particularly common in winter and in epidemics. They are most severe and more frequent in cigarette smokers, children of parents with established bronchitis and in industrial societies.

Clinical Features :

(1) The onset of acute tracheitis is usually sudden with mild constitutional symptoms with temperature between 99° and 101°F .

(2) There is often soreness and occasionally severe pain which is aggravated by the harsh dry cough.

(3) In the event of the involvement of larynx, the voice may be hoarse or absent.

(4) When bronchitis dominates, the temperature rises higher up to 103°F .

(5) The initial cough is painless, but there may be tightness in the chest. The cough is worse on lying down in bed and waking in the morning.

(6) The patient is often flushed and breathing usually normal.

(7) On auscultation, the widespread inspiratory and expiratory wheeze may be heard.

(8) Acute bronchiolitis occasionally produces a much more severe illness which resembles pneumonia with cough and purulent sputum.

(9) Dyspnoea is a feature and may be severe, accompanied by central cyanosis and widespread crepitations all over the chest.

(10) There is tachycardia and tachypnoea.

Complications :

As already stated simple tracheitis may develop into bronchitis and broncho-pneumonia.

Diagnosis :

A clinical picture is usually sufficient to establish the diagnosis. A chest radiogram may assist the diagnosis in later advanced conditions but not in the early conditions.

Treatment :

See 'bronchitis' and compare the following remedies :

- (1) Ars. Alb.
- (2) Phosphorus.
- (3) Cannabis Sativa.
- (4) Carbo Animalis.
- (5) Bryonia.
- (6) Osimum.
- (7) Lachesis.
- (8) Apis.
- (9) Rumex.
- (10) Kali bich.
- (11) Causticum.

BRONCHIOLITIS

This disease is also called *Capillary bronchitis*. It is an acute inflammatory process involving the smallest air tubes. It is a dangerous complication of acute bronchitis and is not uncommon among infants and children.

Symptoms :

Bronchioles get affected and are quickly obstructed by the secretion and the swelling of the walls. Pulse and respiration rise rapidly. The face becomes livid, exhausted. Delirium or Coma follow as a result. Rales may be heard near the lower lobes. In some cases the obstruction is so extensive that the breath sounds are almost audible.

In some cases the outlook is very grave but recovery is not uncommon. An occasional result is the development of a permanent dilatation or Bronchiectasis.

Treatment :

Antim Tart 30 will be the most suitable remedy in most cases of this disease.

(B) DISEASES OF THORACIC RESPIRATORY TRACT

(1) Diseases of bronchi and lungs.

BRONCHITIS

Bronchitis is the commonest disease of the respiratory tract. It may be defined as an inflammation of the lining membrane of the larger and medium sized bronchi and in majority of cases it is the result of infection besides inhalation of irritating vapours.

Bronchitis results from a failure of the defences of the respiratory tract as a result of their being overwhelmed by a virulent infection or by depression of the resisting power following exposure to cold or as a consequence of some defect in the anatomical structures. In a few cases, the infection is carried to the bronchi by the blood stream.

ACUTE BRONCHITIS

Definition :

Acute bronchitis or catarrhal inflammation of the larger and medium-sized bronchi is not a serious disease except in infancy and old age.

Etiology :

This disease may be usually associated with the respiratory syncytial virus (RSV). It tends to appear in localised outbreaks for limited periods. The inflammatory process extends from the nasal focus down the pharynx and trachea to the bronchial mucus membrane. It also occurs in association with other diseases usually measles, whooping cough, and the 'enteric fevers'.

Symptoms :

(1) At the onset there is a feeling of oppression and languor, pain behind the sternum and headache.

(2) There is slight temperature ; respiration is somewhat raised.

(3) The cough is a bit difficult and painful and the expectoration is scanty and viscid.

(4) After a day or two the sputum is more painful and becomes purulent which makes coughing easier.

(5) In the case of infants and of feeble elderly subjects there is a danger of the smaller tubes becoming blocked with secretion, and of broncho-pneumonia.

Signs :

(1) The tongue is usually coated and the voice husky.

(2) In most cases high and low pitched rhonchi are heard ; chiefly in the lower lobes.

(3) Resonance and voice conduction are affected.

Diagnosis :

Is made by the adventitious sounds.

Differential Diagnosis :

The mode of onset and the physical examination will prevent simple bronchitis from being confused with any other disease.

Complications :

Capillary bronchitis and broncho-pneumonia may follow.

Prognosis :

This is not unfavourable, except in old persons or adults with advanced cardiac disease.

CHRONIC BRONCHITIS

Simple chronic bronchitis is a condition in which there is chronic or recurrent increase in the volume of mucoid bronchial secretion sufficient to cause expectoration. Throat cleaners who swallow their sputum should also be included in this definition, but it is not possible to diagnose chronic bronchitis with confidence in the presence of other cardio-pulmonary diseases which may themselves give rise to expectoration.

Chronic bronchitis may be complicated by infection, giving rise to chronic or recurrent muco-purulent bronchitis in which the sputum is persistently muco-purulent. On the other hand chronic bronchitis must be further complicated by persistent widespread narrowing of the airways at least on expiration which causes airways obstruction. It may then be termed chronic obstructive bronchitis.

Etiology :

The following may be the causes of this condition.

(1) **Cigarette Smoking.** The death-rate among cigarette smokers is generally higher.

(2) **Atmospheric Pollution.** Smoke and Sulphur dioxide are the major factors in the air pollution.

(3) **Infection.** Infection with respiratory Bacterias (*Mycoplasma pneumoniae*) and Viruses especially *H. influenzae* cause most of the danger.

(4) In *occupations*, dust and fumes *e.g.* in coal mines and steel and flax workers, there is greater prevalence of the disease.

(5) Chronic bronchitis is more common in men and incidence increases with age.

(6) Infection increases air way obstruction and poor ventilation and decrease in blood flow, the condition deteriorates further.

Clinical Picture :

(1) The onset is extremely insidious ; throat clearing and the swallowing may be the only symptoms left on the surface.

(2) Usually there is expectoration of mucus with cough after waking.

(3) As age advances, the cough becomes more troublesome. The sputum is at first mucoid, but it may contain black specks of carbon particles from smoke. Later it may become yellow or green.

(4) Haemoptysis is rare.

(5) Breathlessness may first become apparent very gradually on exertion and then it may be accompanied by wheeze.

(6) There may be no physical signs [but with increasing mucus secretion, rhonchi may be heard which clear on coughing.

(7) Airway obstruction increases and with it wheezing may become persistent.

(8) Clubbing of fingers is exceptional and should give rise to suspicion that carcinoma of the lung is present.

(9) Advanced chronic bronchitis leads to respiratory failure. There may be loud closure of pulmonary valve.

(10) The liver is enlarged and there is peripheral oedema.

Diagnosis :

It is made by examining the respiratory movements of the chest, their rate and rhythm etc.

Complications :

Asthma is often associated. In long-standing cases, bronchiectasis, emphysema, and ultimately congestive heart failure may appear. From frequent coughing, hernia may develop.

Prognosis :

The condition, though progressive, is not fatal, but the chances of complete recovery are meagre with longevity shortened.

Differential Diagnosis :

Is to be made from chronic pulmonary tuberculosis and bronchiectasis. Diagnosis of bronchitis is made by seasonal onset of cough, associated with rhonchi and rales in the lungs and progressive emphysema, while that of pulmonary tuberculosis by the presence of tubercle bacilli in sputum.

Treatment :

General : (1) The patient should be put to bed.

(2) Dusty, stuffy and damp atmosphere should be avoided.

(3) During the attack, no fats should be used, and fresh lukewarm water be drunk.

Curative :

(1) **Aconite.** The stage of this medicine is brief. Before the inflammation is localised, it is indicated in the beginning, if caused by exposure to cold draft, or dry cold winds, or if it occurs as a result of checked perspiration, the symptoms being coryza, frequent sneezing, chilliness, restless sleep, full hard pulse and anxiety.

(2) **Antim Tart.** This remedy is to be considered at two stages, the early stage and the later stage in capillary bronchitis of children and old people with the following indications :—

(i) wheezing respiration,

(ii) moist rales throughout the chest,

(iii) cough appears to be loose, but no phlegm is raised,

(iv) in children there is no cough, but there is drowsiness, superficial, laboured respiration and vomiting of food, and mucus may sometimes be there.

(3) Belladonna :

- (i) violent fever,
- (ii) short, dry, continual distressing cough, worse at night and on lying down,
- (iii) breathing irregular and hurried,
- (iv) no expectoration ; if it is there, it is blood-streaked,
- (v) fulness in chest without pain, though children cry, when coughing, and
- (vi) skin is hot, and inclined to perspire only with occasional starting.

(4) Bryonia. Seldom indicated in pure bronchitis. It should be prescribed when :

- (i) the cough is very severe, and hurts the head and distant parts of the body,
- (ii) the patient presses the head or the side of the chest, while coughing,
- (iii) great pressure on sternum, dyspnoea and dry cough which seems to start from the stomach,
- (iv) the cough is worse after a meal, and has no expectoration practically,
- (v) stitching pain in the sides of chest indicate it especially, and
- (vi) aggravation from a change of warm to cold atmosphere.

(5) Carbo Veg. For bronchitis of old people having :

- (i) profuse, yellow, offensive expectoration,
- (ii) dyspnoea,
- (iii) much rattling in chest, and
- (iv) burning.

(6) Mercurius Sol. An excellent remedy in inflammatory bronchitis, when indicated as :

- (i) dry, concussive, exhausting cough,
- (ii) sputum, watery, saliva-like, or muco-purulent,
- (iii) fever with alternation of chill and heat,

- (iv) desire for cold drinks which aggravate the cough,
- (v) pasty sweat without relief, and
- (vi) soreness and roughness from fauces down to middle sternum.

(7) **Phosphorus** is adapted to sub-acute, lingering cases of persons who are delicate, tall, slender, overgrown or phthisical, having the following indications:

- (i) paroxysmal cough with pain below chest,
- (ii) suffocative pressure in the upper part of chest with constriction of larynx.
- (iii) hoarseness,
- (iv) mucus rales,
- (v) bloody and mucus sputum or purulent, having a salty or sweetish taste ; patient better after sleep,
- (vi) respiration is halting with a tendency to pneumonia,
- (vii) cough worse after meals and going to open air,
- (viii) soreness and drowsiness of chest, and
- (ix) use of voice aggravates cough.

(8) **Sulphur** is adapted to chronic cases, when :

- (i) loud rales are present
- (ii) profuse, thick, muco-purulent expectoration persists, and
- (iii) suffocation in attacks exists.

(9) **Ipecacuanha** is similar to *Antim Tart*,

but the rales are louder and coarser with much coughing, which does not bring out the sputum. There is no prostration like that of *Antim Tart*.

(Senega, Lachesis, Arsenicum, Nux vom., Rhus Tox, 'Scilla' Veratrum Album and Dulcamara are valuable remedies for bronchial catarrhs of the old).

(10) **Kali Carb** is a suitable remedy for capillary bronchitis, when there are sharp stitches in the chest along with dyspnoea, choking cough and great weakness.

(11) **Hepar Sulph** is a suitable remedy for loose, choking, rattling cough with moist rales. The expectoration is yellow and the voice is hoarse.

(12) **Pulsatilla** is to be given, when the expectoration becomes copious, loose thick and muco-purulent. If hepatic symptoms are present in capillary bronchitis, *Chelidonium* is the remedy.

(13) **Kali Bich.** Acute or chronic bronchitis, where the mucus is tough and difficult to raise.

(14) **Causticum** for long-standing cases of emaciation and disease, where burning soreness, rawness are characteristic indications. Aphonia or hoarseness is present. The patient has mucus under the sternum which he cannot raise. Besides, he cannot lie down at night.

(15) **Carbo Veg** for old persons with blue nails, cold extremities, profuse expectoration without any power to raise it ; hoarseness.

(16) **Lycopodium.** Bronchitis complicated with emphysema. The cough sounds loose, but not easy to raise ; cough, worse from stretching the arms, stooping and lying down on the left side, from eating, or drinking cold things, in the wind, or in the warm room.

(b) DISEASES OF LUNGS BRONCHIECTASIS

Definition :

Bronchiectasis is a condition of lungs, characterised by permanent dilatation of several bronchial tubes. The dilatation is associated with structural changes in the bronchial walls, which are predominantly inflammatory. The neighbouring lung tissue is usually involved in a similar process to a lesser or greater extent. A paroxysmal morning cough with offensive sputum is usually present.

Etiology :

(1) Bronchiectasis or dilatation of the bronchi results commonly from infection and obstruction in childhood.

(2) It may arise in congenital disorders associated with *dextrocardia* or develop in frontal sinuses or in sequestered lung segments or *bronchial atresia*.

(3) It may follow from the obstruction of a large bronchus by a foreign body, a stricture, neoplasm, or by pressure from without.

(4) Infection may cause bronchiectasis in bronchial pneumonia.

(5) It may accompany measles, whooping cough, tuberculosis and fibrosis, and few others.

Clinical Features :

(1) Cough and sputum (usually purulent) are commonly of long-standing and a severe nature.

(2) There may be haemoptysis in dry bronchiectasis with no sputum or bronchial secretion.

(3) Dyspnoea is usual in obstructive cases.

Physical Signs :

(1) The physical condition is generally good.

(2) Clubbing and pulmonary osteo-arthritis may be present.

(3) Medium and coarse crepitations is a characteristic sign.

(4) Other signs of consolidation, collapse and fibrosis may be present.

(5) Bronchiectasis is complicated with pneumonia, usually non-specific.

(6) Sinuses are frequently encountered.

(7) The inflammation may spread to the pleura to give rise to dry pleurisy with pain or uncommonly to pleural effusion.

(8) Brain tumour is a rare complication, when infection is uncontrolled.

Diagnosis :

It may be confused with :

(1) *Pulmonary tuberculosis*, where the sputum examination will clarify the diagnosis.

(2) With *chronic bronchitis*, in which the physical signs are absent and bronchospasm is present.

(3) With *emphysema* and other lung diseases, in which case bronchography will help to clear the diagnosis showing bronchial dilatation. The diagnosis of bronchiectasis is made by paroxysmal morning cough, often induced by changes in posture, characteristic sputum, clubbing, local signs in the lungs, bronchography and X-rays.

Complications :

- (1) **Broncho-pneumonia,**
- (2) **Abscess** or **gangrene** of lung,
- (3) **Pleurisy** occasionally, and
- (4) **Brain** or **spinal abscess,** are the possible complications.

The unfavourable signs appear, when repeated infections, continued deterioration of health and appearance of congestive heart firmly establish the disease. Otherwise, damage to lungs can be prevented by effective and timely treatment and the life can be prolonged.

General : (1) Breathing exercises should be undertaken.

(2) Change of air is advisable.

Curative :

Treatment must be according to catarrhal symptoms. The following remedies are suggested :

- (1) *Bacillinum.*
- (2) *Balsam Peru.*
- (3) *Ammoniacum.*
- (4) *Eucalyptus.*
- (5) *Stannum.*
- (6) *Silicea.*
- (7) *Pulsatilla,*
- (8) *Kreosotum,*
- (9) *Hepar Sulph.*
- (10) *Calcarea Sulph.*
- (11) *Kali Carb.*

See "Bronchitis" also.

BRONCHIAL ASTHMA

Definition :

Bronchial asthma is a condition in which there is variable breathlessness due to widespread narrowing of peripheral airways which varies in severity over short periods of time, either spontaneously or with treatment.

Etiology and Origin of Development :

The variable narrowing of peripheral airways is due to one or all of the following :—

- (1) Contraction of bronchial smooth muscle ;
- (2) Oedema of the mucus membrane ; and
- (3) Mucus within the lumen.

Broncho-constriction is a normal response to noxious stimuli, such as, cigarette smoke, and sulphur dioxide, also to alterations in the concentration of oxygen and carbon dioxide in the lumen. These responses are either direct or mediated reflexly by the vagus nerve. Many factors seem to be responsible for the release of these agents (mediators), amongst which are :

- (i) exercise,
- (ii) allergy, and
- (iii) infection.

But the actual mode of release is conjectural. Other factors, for instance, psychological, pharmacological (*i.e.* drugs) may potentiate broncho-constriction.

(1) **Exercise.** This frequently brings broncho-constriction in asthma, and may be detected by simple tests.

(2) **Allergy.** Hypersensitivity reaction in the bronchial wall may provoke the release of narrowing agents. These agents are called allergens (antigens). The entry of these allergens is by inhalation or occasionally by ingestion (*e.g.* of milk, aspirin, etc.) Inhalation of allergens provokes an antigen-antibody reaction and damages the cells. As a result, persons have asthma or hay-fever, eczema as an allergic manifestation.

(3) **Infection.** Bacterial or viral infection may be an important factor at the onset and in the course of asthma. The mechanism by which infection may provoke or prolong asthma remains unknown, though allergy to bacterial protein as well as the direct effect of inflammatory reactions in the bronchial mucosa are possible.

(4) **Psychological Factors.** Families of asthmatics have a higher than normal incidence of neurosis and psychiatric illness, as do the asthmatics themselves.

Clinical features :

The leading characteristic of this disease is its paroxysmal nature.

Symptoms :

(1) The attack usually sets in the latter part of night, or early morning, or soon after exposure to an allergic medium.

(2) Restlessness or mental depression or excitement.

(3) Sneezing or coryza.

(4) Flatulence or excessive voidance of urine.

(5) Dyspnoea and the tendency of sitting in bed with head low and elbow on knees.

(6) Irritable unproductive cough with wheezing in chest.

(7) The patient may give a history of eczema in childhood, or bronchitis or broncho-pneumonia. Dyspnoea, tightness in chest and wheezing are significant symptoms.

Signs :

(1) Cyanosis.

(2) Respiration is not increased more often.

(3) Resonant sounds on percussion.

(4) Wheezing sounds, with copious bubbling rales under stethoscopic examination.

(5) May be emphysema.

(6) Pulse often quick and feeble.

(7) Systolic blood pressure lowered,

(8) Jugular veins prominent.

(9) Blood examination often shows presence of eosinophilia.

(10) Sometimes, there is a tendency to skin eruptions (Urticaria or eczema alternated with an asthmatic attack).

Complications :

In long-standing cases, the lungs become *emphysematous* and *chronic bronchitis* may be added to it. Ultimately the right ventricular failure may bring about the end.

Diagnosis :

It is chiefly made by auscultation, which shows short inspiration, laboured expiration (prolonged), rhonchi, bubbling rales, and distant heart sounds.

Differential Diagnosis :

This is rarely difficult, if the patient is observed during an acute attack. The dyspnoea, the sibilant rales, the thick, tenacious mucus, and history of periodic attacks are very characteristic. These symptoms will enable the observer to distinguish asthma from chronic bronchitis and emphysema, cardiac asthma, anaemia, and in tropical eosinophilia, blood examination for eosinophil count clinches the diagnosis. It is to be distinguished from *laryngeal* affections by the absence of change in the voice, and from *capillary bronchitis* by physical examination.

Prognosis :

25 to 30% cases undergo spontaneous recovery, if the disease starts in early childhood. During adult life, the chances of spontaneous recovery are much less marked. Asthma is a chronic disease, and so it has marked tendency to last over a period of years, unless the causative factors are located, and satisfactorily handled or removed from the environment of the patient.

Treatment :

General. (1) The diet should be light and small in bulk.

(2) Items of food which excite the attack should be avoided.

- (3) A heavy meal should not be taken at night.
- (4) Bowels should in no case remain constipated.
- (5) Exposure to drafts must be avoided.

Curative and Palliative Remedies :

(1) **Antim Tart.** When fine mucus rales are present throughout the chest (finer and smaller than those in *Ipecac.*) which is full of phlegm with inability to expectorate this remedy will certainly work. The additional symptoms are :

- (i) great dyspnoea,
- (ii) the patient must sit up. The attacks are suffocative occasionally at about 5 O'clock in the morning, difficulty in raising expectoration. That the patient cannot breathe enough air is the characteristic sensation.

(2) **Arsenicum Album.** The following symptoms are indicated :

- (i) attack after midnight,
- (ii) great anguish and restlessness,
- (iii) cannot lie down for fear of suffocation,
- (iv) anxiety and general sweat,
- (v) while being drowsy, the patient awakens with burning pain and soreness in chest,
- (vi) suits the aged, when dyspnoea is habitual and dry, and
- (vii) great debility and burning in chest and is especially useful to anaemic persons. This is a polychrest for asthma ; follows *Ipecac*, very well.

(3) **Ipecacuanha.** The indications are :

- (i) great weight and anxiety about the chest,
- (ii) spasmodic variety,
- (iii) sudden wheezing, dyspnoea, threatening suffocation,
- (iv) symptoms aggravated by motion,
- (v) cough causes gagging and vomiting,

(vi) although the chest is full of phlegm, yet there is no expectoration, and

(vii) the extremities are covered with cold perspiration.

(4) **Kali Bichromium.** This remedy is similar to Arsenicum except for the stringy yellow mucus. The attacks come at about 3 or 4 O' clock in the morning and compel the patient to sit up to breathe. Bending forward relieves, and so does the expectoration.

(5) **Moschus.** Persons, who are highly sensitive, nervous or neurotic, benefit by this remedy, when intense anxiety and nervousness predominate. Along with this anxiety, there is intense fear and a smothering sensation.

(6) **Natrum Sulph.**

(i) General indications are : worse on change from warm to damp weather,

(ii) moist asthma, great deal of rattling in chest,

(iii) bowels loose after each attack,

(iv) presence of sycotic taint is strongly indicated,

(v) attacks come at about 4 to 5 O' clock in the morning with cough and glairy expectoration, and

(vi) the patient must sit up and hold the chest during the attack.

(7) **Nux Vomica.** When asthmatic attacks are brought on by gastric disturbances, this is the remedy. Other indications being :

(i) simple spasmodic asthma,

(ii) relief by belching,

(iii) the patient must loosen clothing,

(iv) suits coffee or liquor drinkers,

(v) temperament, bilious or irritable, and

(vi) constricted feeling of lower part of chest.

(8) **Lycopodium & Carbo Veg.** When there is much abdominal irritation along with much flatulence, these remedies are to be thought of for the aged or the debilitated. In both these medicines, the patient is generally oppressed for breath and is relieved by belching.

Other possible remedies are :

Apis ; Blatta Orientalis ; Bromine ; Gringelia ; Kali Carb ; Ambra ; Lobelia ; Silphium ; Viscum Alb ; Zingiber ; Aconite ; Hydrocyanic acid ; Bryonia ; Cuprum ; Drosera ; Lachesis ; Pothos Faetidus ; Sambucus ; Spongia and Sulphur.

Pulmonary disease with eosinophilia, Polyarteritis Nodosa, and Wegener's Grandioploma
(Loeffler's syndrome)

Definition :

This group forms a disease of the lungs, associated with eosinophilia in the peripheral blood. Another synonym is pulmonary infiltration.

Etiology and origin of development :

This hetrogenous group of disorders of the lung associated with eosinophilia may vary greatly in severity, but in all, there is abnormal radiological shadowing with an eosinophil count in excess of 500 per mm. Some are associated with disease elsewhere. There are three broad clinical types :

(1) Simple Pulmonary disease with eosinophilia

(a) **Without asthma.** This is mainly a hypersensitivity reaction in the lung in which focal areas of eosinophilic infiltration may be seen. Loeffler originally included cases of a benign nature. The reaction may, however, be hypersensitivity reaction more severe to parasites, such as, *Ascaris*, *Toxocara*, *Ankylostoma*, etc. to drugs, such as penicillin, aspirin, sulphonamides etc. or to pollens.

There may be cough, dry or accompanied by pale, yellow sputum containing large number of eosinophils. In more severe cases, there may coexist fever, malaise, hay fever and other hypersensitivity states. The chest radiography may show longer and nodular shadows but in mild cases the shadows may come and go in one or more parts of the lung, and usually disappear in a few weeks.

The transient nature of the shadows and the high eosinophil count (usually between 500-1500 per mm^3) serve to differentiate this condition from others.

(b) **With Asthma.** Eosinophilia is frequently found with asthma. The infiltration of one lung with eosinophilia is less common. Ninety-five per cent cases (chiefly in United Kingdom) are manifestations of hypersensitivity to *A. fumigatus*. The eosinophilia is often considerable. The onset is often very acute, and followed by asthma. There may be pulmonary vasculitis, but not all cases are variants or forerunners of polyarteritis nodosa.

Tropical Eosinophilia due to infestation with filariae is usually associated with asthma. This is most common among Indians. There is usually a dry cough, a wheeze and sometimes fever. The chest radiography shows bilateral, vague, nodular or micronodular shadows. Sometimes pleural effusions may be seen.

(2) **Polyarteritis Nodosa.** The lung is involved in about a third of the cases of polyarteritis nodosa, and of those with lung involvement about a half have an eosinophilia and many have asthma. It involves both sexes equally and is of unknown etiology. Polyarteritis nodosa restricted to the lung may cause severe illness with, or without asthma or eosinophilia. Cough, loss of weight, weakness, high fever and pleurisy may be seen in these cases with widespread signs of consolidation in the lungs. The clinical manifestations and radiological changes (often dense homogeneous shadows) may come and go or progress. Pleural effusions may be seen.

(3) **Wegener's Granuloma.** This is probably a variant of polyarteritis and is characterised by ulcerating nasal granulomata, necrotic lesions in the lungs, which may cavitate, and renal involvement. The disease is common in middle life and resembles polyarteritis nodosa. It affects both sexes equally and is accompanied by fever, cough and often haemoptysis and pleurisy. Single or multiple, large or small round dense opacities are seen in the chest radiograph. These may cavitate.

Renal involvement usually determines the prognosis, and when untreated, the disease usually progresses rapidly.

Treatment :

See "Asthma" and "Bronchitis."

THE PNEUMONIAS

(Pneumonitis)

Definition and Etiology :

The pneumonias or pneumonitis is the term used to describe the inflammatory and consolidated condition of the lung. There are many kinds of pneumonia, some common and others rare. While anatomical or other features may be characteristic, an etiological basis of classification is the most satisfactory. Pneumonia or pneumonitis is usually due to infection. There are two broad groups :

- (1) The specific and,
- (2) The non-specific (aspiration) pneumonias.

(1) Infections which cause pneumonia may be *specific* or *non-specific*. In *specific pneumonias* the micro-organism invades the lung in which the local defences are usually intact, *i.e.* the cough reflex, and the ciliary (hair-like) mucus mechanisms. In *non-specific pneumonias*, the micro-organism—often a common inhabitant of upper respiratory tract or alimentary tract—is able to invade the lung, because these local defence mechanisms are impaired.

(2) A generalised impairment of immune mechanisms may lead to pneumonias in which the invading micro-organism is an unusual virus, fungus or protozoon, a so-called *opportunistic infection*. Such immune deficiencies are found in primary anaemias or in those that occur with the leukaemias or in the rare granulomatous disease of childhood. Drugs and radiation therapy are also contributory factors.

(3) Specific pneumonias may develop in the course of a systemic infection *e.g.* typhus, typhoid, chicken-pox, and small-pox. These pneumonias may be relatively unimportant.

SPECIFIC PNEUMONIAS

This group may be further sub-divided into pneumonias caused by bacteria and by virus and similar agents. The bacteria known to produce specific types of pneumonia are *Streptococcus pneumoniae*, *Staphylococcus pyogenes*, *Klebsiella pneumoniae*, *H. Influenzae*. *Mycobacterium tuberculosis*, is a less frequent cause of pneumonitis.

A large number of viruses may also produce specific pneumonia, such as, *Rickettsia (coxiella) burneti* (Q. Fever), *Mycoplasma pneumoniae*, and *Bedsoniae* of the *Ornithosis (Psittacosis)* group.

Pneumonia due to the streptococcus pneumoniae or pneumococcus still constitutes the largest proportion of all specific pneumonias and will be described here in detail. Shorter accounts will be given of the other types.

PNEUMOCOCCAL PNEUMONIA

(Syn-Acute Lobar Pneumonia)

Definition :

Pneumococcal pneumonia is an inflammatory condition of lung, characterised by homogeneous consolidation of one or more lobes or segments.

Etiology and Pathology

The pneumonic process usually affects only one lobe or segment, but the infection may spread to other lobes or segments in the same or opposite lung. There is coincident inflammation of the overlying pleura. The affected lobes or segments undergo consolidation in which there is exudation of fibrin, red blood cells and later white blood cells into the alveoli. Resolution is first achieved by liquefaction of the exudate by macrophages, and then by its absorption or expectoration. Resolution is usually complete, fibrosis and bronchiectasis seldom follow this type of pneumonia.

The causative organism in nearly all cases is *streptococcus pneumoniae* or *pneumococcus*. This is a capsulated, lanceolated, Gram-positive bacteria growing in pairs of short chains. This type of pneumonia accounts for a larger number of deaths in temperate climates in India between the age of 15 and 40 years.

Pneumonia sometimes follows trauma to the chest wall and injury to the lungs by inhalation of irritating fumes. The commonest factors and those which impair the defensive mechanism against infection, such as, old age and chronic debilitating disease *e.g.* diabetes, nephritis, cirrhosis, tuberculosis and chronic alcoholism. It may be the result of cold, particularly wet cold or exhaustion following violent physical exertion. Many cases are not true pneumonic cases but are examples of massive collapse of the lung or its infarction by emboli.

Clinical Features :

(1) The onset is sudden, with rigor, or with vomiting, or convulsions in children.

(2) The temperature rises to 102-104°F.

(3) Malaise, loss of appetite, headache and aching pains in the body and limbs accompany the pyrexia.

(4) Localised pain of pleural type develops at an early stage in the illness.

(5) The pain is generally referred to the chest, but may be referred to the shoulder or to the abdominal wall, when it may be difficult to determine, whether the primary lesion is in the chest or abdomen.

(6) There is a short, painful cough, dry at first but later productive of tenacious sputum which is often rust-coloured and occasionally frankly blood-stained.

(7) Respiration is rapid (30 to 40 per minute in adults and 50 to 60 in children)—shallow and painful, and there may be dilatation of alae nasi with each respiration.

(8) The pulse is rapid and in severe cases blood pressure tends to fall.

(9) The skin is hot and dry, the face is flushed, and cyanosis may occur early.

(10) Herpes labialis is often present.

(11) A marked neutrophil leucocytosis. 15,000 to 30,000 per c. mm. is characteristic.

(12) The causative pneumococcus can usually be isolated from sputum and a positive blood culture may be obtained in severe cases.

Physical Signs :

For the first 24 to 28 hours of the illness, there is diminution of respiratory movement, slight impairment of the percussion note, and often a pleural rub on the affected side. The breath sounds are diminished. Vesicular, and fine crepitations may be heard at the end of inspiration. At a variable time, after the onset, generally within two days, signs of consolidation appear, the breath sounds being of the high-pitched bronchial type. When resolution begins, these breath sounds are replaced by low-pitched bronchial breath sounds, which later gradually revert to normal vesicular. Numerous coarse crepitations are heard including liquefaction of the exudate. Radiological examination shows a homogeneous opacity localised to the affected lobe or segment, appearing within 12 to 18 hours of the onset of illness.

Complications :

(1) **Pulmoary** (a) Spread to other lobes. This is usually uncommon.

(b) Delayed resolution, which is generally noticed in patients with chronic bronchitis, emphysema and in cases where the consolidation has been very extensive.

(2) **Pleural**. Infection may spread to the pleura with pleural effusion or empyema.

(3) **Cardio-Vascular**. Peripheral circulatory failure.

(4) **Neurological**. Meningism. This is not uncommon among children. Pneumococcal meningitis is very rare.

Diagnosis :

The characteristic features of pneumococcal pneumonia are the initial rigor, herpes labialis, the physical signs of consolidation, a

high neutrophil leucocyte count, pneumococci in the sputum, a lobar or segmental radiological opacity.

The following conditions may be difficult to distinguish from pneumococcal pneumonia :

(i) Other types of specific and non-specific pneumonias (Refer to subsequent pages).

(ii) **Pulmonary infarction** in which pyrexia is less marked, frank haemoptysis is common, cough is inconspicuous, and the site of the origin of embolus can often be indentified.

(iii) **Tuberculous pleurisy** with effusion in which the correct diagnosis can usually be suspected from the insidious onset, the virtual absence of cough and sputum, the physical signs of pleural effusion, the absence of leucocytosis and the radiological findings.

(iv) **Pulmonary tuberculosis**, in which the patient is seldom so acutely ill as in pneumococcal pneumonia, where respiratory rate is not so markedly increased and the white blood cells are seldom above 12,000 per c.mm. The isolation of tubercle bacilli from the sputum puts the diagnosis beyond doubt.

(v) **Pulmonary collapse**, in which often the symptoms and signs (e.g. diminished or absent breath sounds and mediastinal displacement) are indistinguishable from those of pneumococcal pneumonia. The correct diagnosis can be made by radiological examination.

(vi) **Acute Bronchitis**, in which the onset is less abrupt and the systemic disturbance less severe than in pneumococcal pneumonia. Pleuritic pain is not present and radiological appearances of pneumonic consolidation are not found.

Prognosis :

It depends on the age and health of the patient and severity of the infection. It is less favourable in the absence of a brisk temperature response or when there is poor leucocytosis, marked cyanosis, delirium or peripheral circulatory failure or the extension of disease to other lobes.

Note : Pneumococcus is another name used for streptococcal *Pneumoniae* organism.

OTHER TYPES OF SPECIFIC PNEUMONIAS (BACTERIAL)

STAPHYLOCOCCAL PYOGENES INFECTION

Pneumonia due to staphy. Pyogenes occurs either as a primary respiratory infection or as a blood-borne infection from a staphylococcal lesion elsewhere in the body, *e.g.* osteomyelitis. The second condition is essentially one of pyaemic abscess formation in the lungs. Primary staphylococcus pneumonia is a relatively common illness especially as a complication of influenza (viral infection). It may present as a lobar or segmental pneumonia or as a suppurative pneumonia with multiple lung abscesses.

KLEBSIELLAR PNEUMONIA

(Friedlander's Pneumonia)

Pneumonia due to Klebsiellar Pneumoniae is a rare disease. There is usually massive consolidation and excavation of one or more lobes being most often involved, with profound systemic disturbance, the expectoration of large amounts of purulent (sometimes chocolate-coloured) sputum and a high mortality. The diagnosis is made by the radiological appearances and the isolation of the causative organism from the sputum.

TUBERCULOUS PNEUMONIA

(See Page 308 middle)

VIRUS PNEUMONIA

(Atypical Pneumonia)

Definition :

Virus pneumonia is a diffuse inflammation of the lung in the form of pneumonitis rather than pneumonic consolidation seen in bacterial infections, accompanied by general malaise, anorexia, remittent fever and a dry, frequent, non-productive cough. The disease usually lasts for 10-14 days and is rarely fatal.

Etiology :

Many rickettsiae, bedsonia and viruses may cause pneumonia, *e.g.* Q. fever, psittacosis, the exanthemata and the numerous respiratory viruses, but these have not been responsible for pneumonia in

many patients, in a high proportion of whom cold agglutinins appear in their blood. The etiological agent in the latter is known to be not a virus, but an organism of the family *mycoplasma* which grows on in an artificial medium with a very high content of serum. The organism may be recovered from sputum or possibly from throat washings or swabs, and specific antibodies to it appear in convalescence. Infection results from contact with other active cases of symptomless infections.

Symptoms and Signs :

(1) The incubation period is 7-14 days.

(2) The onset is insidious with mild respiratory symptoms, general malaise, fatigue and slight paroxysmal cough followed by a sore-throat, mild chest pain, moderately elevated temperature.

(3) Sometime later, crackling shifting rales and sputum may be produced.

(4) X-ray of the lung will usually show widespread lesion, mottled or ground-glass-like shadows in hilar area or distributed in patches throughout the lung.

Diagnosis :

Differential diagnosis from bacterial pneumonia is usually possible from the history and the X-ray picture. Isolation of virus or mycoplasma may be attempted in the first day or two of symptoms, but because of the insidious nature of the onset, the patient is generally seen too late, unless an outbreak is in progress.

Prognosis :

Fatality is rare even from secondary infections or complications. Homoeopathic treatment on symptomatic basis may speed up recovery, free from complications.

PNEUMONIA DUE TO MYCOPLASMA PNEUMONIAE

(Primary atypical Pneumonia)

Etiology :

Mycoplasma pneumonia has been found to be responsible for 10—35 per cent of lower respiratory infections and is worldwide

in prevalence. It is often the cause of illness during the summer and autumn. Spread of infection is often observed in families and institutions with an interval of about 16-23 days between cases. The infection has a high attack rate, especially in children (over five) and young adults; only about one in thirty infected persons develops pneumonia. The organism continues to be secreted for a long time *i.e.* 10-13 weeks.

Clinical Picture :

(1) The onset is characterised by general symptoms, such as, malaise, fever and headache, 1-5 days before development of respiratory symptoms.

(2) Occasionally there is sore-throat and coryza. The cough is at first dry, later becoming productive of mucoid sputum.

(3) Fever is usually remittent at first and then intermittent, lasting from 10 to 14 days.

(4) Physical signs, such as, crepitations, consolidation of the lung, develop after the 4th day or so. A pleural rub may be heard in about 5% of cases. The illness is usually uncomplicated, but anaemia (haemolytic) may occur.

(5) Less commonly erythema multiform, pericarditis, arthralgia and meningo-encephalitis may occur.

Diagnosis :

This is difficult on clinical grounds. But it is easier, if complications accompany the clinical picture. Chest radiography will show patchy and basal shadows and 20% of cases are generally bilateral.

Treatment :

General : (1) The patient should be segregated in a warm well-ventilated room.

(2) The sputum must be disinfected.

(3) Over-crowding and exposure to chill are to be avoided.

(4) The diet must be light and nutritious, milk being the best article of food.

- (5) Alcoholic stimulants may be used.
- (6) Oxygen may have to be administered.

Treatment of Pneumonias :

(1) **Aconite.** Early and congestive stage in young and plethoric young men, who are full of life and vigour, when the attack is sudden. The symptoms that call for it are :

- (i) pneumonia due to exposure to cold and dry winds,
- (ii) hard, dry, tickling and painful cough,
- (iii) expectoration, if at all, is watery, serous, and frothy and may be blood-streaked,
- (iv) unbearable pain with restlessness, tossing about, anxiety,
- (v) high and sudden fever preceded by chill.
- (vi) hot dry skin.

(2) **Antim Tart.** This remedy will be found suitable when the inflammation of both lungs and pleura takes place. The symptoms indicating the remedy are :

- (i) the patient feels that the next cough will raise the mucus, but it does not,
- (ii) fine moist rales all over the hepatised portion of the lung are heard,
- (iii) great oppression of breathing, worse towards morning, compelling the patient to sit up to breathe,
- (iv) sharp stitching pains and high fever.
- (v) occasional vomiting.

(3) **Bryonia** is an excellent remedy for *Pneumonia, complicated with pleurisy*, worse on slightest motion and relieved by lying on the affected side,

(ii) dry, hard cough with scanty rusty sputum, but it is dry (as in Aconite), the tendency being towards moistness,

(iii) the patient is lying quietly,

(iv) there may be flushes on cheeks and slight delirium and in-difference.

(v) a right-sided remedy,

(vi) the patient feels hurt during coughing, and holds his breath to prevent it. The cough hurts distant parts of the body, too.

(4) **Chelidonium** :

(i) The right lung is more often affected under this remedy in catarrhal pneumonia,

(ii) excessive secretion in bronchial tubes, which the patient is unable to raise,

(iii) stitching pains under the right scapula,

(iv) loose, rattling cough and difficult expectoration,

(v) fan-like motion of the nostrils,

(vi) vomiting.

(5) **Iodine**. In both first and second stages and even in later stages of pneumonia of a croupous variety ; this remedy, if given in the first stage, will arrest hepatisation. The symptoms are :

(i) high fever and restlessness,

(ii) cough with great difficulty in breathing as if the chest would not expand,

(iii) sputum is blood-streaked. The medicine may be prescribed in lower potencies in drop doses.

(6) **Kali Carb**. Being similar to Bryonia, this drug is indicated, when there are stitching pains in the chest aggravated by motion the only difference being that these pains come even, when there is no motion, and the disease is concentrated in the lower part of the lung. The other symptoms are :

(i) dyspnoea is severe and the mucus is raised with great deal of difficulty,

(ii) breathing is of a wheezing and whistling type,

(iii) distressing cough.

(7) **Phosphorus**. A sovereign remedy for pneumococcal pneumonia, provided the bronchial symptoms are present, the other symptoms being :

- (i) cough with pain under sternum, as if something was torn loose,
- (ii) pressure across the upper part of chest and constriction of larynx,
- (iii) mucus rales are present,
- (iv) laboured breathing exists,
- (v) sputum is yellowish ; mucus streaked with blood, or rust coloured ; after Phosphorus, *Hepar sulph* is indicated as soon as exudation begins to soften and the third stage starts.

(8) **Sanguinaria.** This drug resembles Phosphorus and has the following indications :

- (i) circumscribed redness of cheeks with burning heat, especially in the afternoon,
- (ii) hands and feet are rather hot or very cold,
- (iii) the heart is weak and irregular,
- (iv) purulent expectoration is offensive,
- (v) fever and burning and fulness in upper chest,
- (vi) dry cough and sharp stitching pains more on the right side.

(9) **Sulph :** *This drug can be used in all stages of pneumonia.* It will prevent hapatisation and bring about slow resolution, if the following symptoms call for it :

- (i) rales and muco-purulent expectoration, slow speech, dry tongue,
- (ii) weakness and faintness,
- (iii) dyspnoea between 12 and 2 at night,
- (iv) useful in neglected cases and psoric constitutions with a tendency towards tuberculosis.

(10) **Veratrum Viride.** This is similar to Aconite, and is to be used in the prodromal stage, when :

- (i) there is violent congestion with glistening eyes, arterial excitement or tension and a full rapid pulse, as against hard, quick and small pulse of Aconite,

- (ii) a red streak down through the centre of the tongue is characteristic of this drug,
 - (iii) stomach symptoms of nausea and vomiting may be there,
 - (iv) deeply flushed face,
 - (v) headache,
- (11) **Other remedies are :**
- (i) Ferrum Phos.
 - (ii) Kali Mur.
 - (iii) Ipecac.
 - (iv) Lycopodium.
 - (v) Tuberculinum.
 - (vi) Belladonna.
 - (vii) Gelsemium.
 - (viii) Pneumococcin (high).

NON-SPECIFIC PNEUMONIAS AND LUNG ABSCESS

(Aspiration or Suppurative pneumonia)

Definition :

Non-specific pneumonias are those that are due to micro-organisms not primarily pathogenic in the lung and those that develop as a result of impaired local broncho-pulmonary defence mechanisms.

Pathogenesis :

Aspiration of mucus and other material into the bronchial tree and impairment of the cough reflex and ciliary mechanism allow micro-organisms, normally non-pathogenic in the lung, to flourish and cause inflammatory changes. Aspiration is particularly likely to happen with infections of the upper respiratory tract with oral or dental infection, with neurological disorders affecting swallowing and with obstructive lesions of the oesophagus. These predisposing factors together with the reduction of the cough reflex during sleep, anaesthesia, stupor or coma allow material to be lodged in the lung most commonly in the upper and lower lobes. Material for aspiration may come from suppurative conditions within the lung itself,

such as bronchiectasis or lung abscess. The progressive inflammation with suppuration is liable to develop in weak and debilitated persons who are unable to cough and in those with diabetes mellitus. The airways may get blocked by aspirated mucus and vomit and by malignant neoplasms. As a result of the blocked airway, the lobe or the segment of the lung may collapse and become the site of an acute inflammatory process due to organisms which lie normally outside the lower respiratory tract. The inflammatory process may produce trivial illness and present itself as a suppurative pneumonia or progress to a solitary lung abscess with little or no pneumonia. The incidence of trivial non-specific pneumonias is not known, but suppurative pneumonia and lung abscess, which may develop at any age, are now very uncommon.

Lung abscess, however, may develop under circumstances other than those in which impairment of broncho-pulmonary defence mechanism takes place. Thus lung abscesses are found :

(1) As a complication of certain specific bacterial pneumonias, particularly those due to *staphy*, *Pyogenes* and *Klebsiella pneumoniae* which themselves may develop into a sub-acute or chronic suppurative pneumonia.

(2) As a result of invasion of the lung from below the diaphragm. An example of this is the spread of organism through the diaphragm from a liver abscess due to *Entamoeba histolytica*, which causes suppuration in the adjacent lung and sometimes rupture of the abscess into the bronchus.

(3) With emboli derived from a septic systemic thrombophlebitis, in which suppuration develops in one or more infarcts in the lung which then proceeds to abscess formation.

Clinical Features :

The severity of illness produced by the non-specific pneumonias and lung abscess varies widely and is often trivial with mild non-specific infections :

(1) Suppurative pneumonia with or without lung abscess may be sudden or gradual in onset.

(2) There is increasing fever and cough with purulent sputum, often copious in volume, sometimes offensive or foetid.

(3) Pleuritic chest-pain and haemoptysis are frequent.

(4) Clubbing of the fingers may develop quite rapidly.

(5) Signs of consolidation may be found in the chest.

(6) As suppurative pneumonia and abscess may be complicated by aspiration of pus into other parts of the lung, the signs may be more widespread.

(7) The complication by the spread of the inflammatory process may cause a cerebral abscess.

(8) Resolution is accompanied by fibrosis and bronchiectasis.

Diagnosis :

This is usually straight forward in the classical case with fever and copious purulent sputum. Carcinoma of the lung is frequently associated with the development of suppurative pneumonia and abscess. Chest radiography is essential in the diagnosis. In suppurative and non-suppurative pneumonias, homogeneous opacity is observed in the lower and upper lobes. Fluid levels appear early or late which indicate abscess formation. In necrotic and cavitated carcinoma, the radiograph shows usually ragged margin to the air-space.

Bronchoscopy is always necessary to exclude obstruction of the bronchus. From the sputum a variety of organisms is usually found in non-specific suppurative pneumonias with or without abscess. A neutrophil leucocytosis of more than 12,000 and often more than 20,000 is usually found.

Prognosis :

For the mild non-specific pneumonias, properly treated, it is excellent, and recovery without lung damage is expected. Unfavourable factors in recovery are delayed treatment, very large abscesses, permanent, bronchial disease and diabetes mellitus.

Treatment :

(1) **Aconite.** For restlessness, dry hot skin, anxiety.

(2) **Belladonna.** Flushed face, headache, delirium, pain in chest, aggravated when lying on the affected side.

- (3) **Hepar sulph.** When pus is forming ; chills and heat.
- (4) **Arsenicum.** Low fever, depression and anxiety.
- (5) **Capsicum.** Foetid expectoration with explosive cough and foetid breath.
- (6) **Carbo Veg.** Gangrene with blueness and coldness of the patient.
- (7) **Crotalus.** Serious cases of gangrene.

ACUTE BRONCHO-PNEUMONIA

(Acute Lobular Pneumonia)

Etiology :

Broncho-pneumonia is a non-specific disease which includes a variety of conditions characterised by scattered areas of inflammation in the lungs.

This is seen only in children under three years of age and is due to infection with the pneumococcus. The symptoms are those of pneumococcal lobar-pneumonia.

Secondary Broncho-pneumonia may, however, occur at any age and affects both sexes equally. It is due to infection with a variety of organisms two or more of which may usually be found in the affected areas of the lung. It is a common complication of infectious fevers, such as, measles, whooping cough, typhoid fever, influenza, erysipelas and small-pox.

Symptoms :

(1) The onset is usually insidious but after a few days the toxæmia is severe with languor, tachycardia, dyspnoea and cyanosis.

(2) The temperature rises gradually and is very irregular, usually higher in the evening than in the morning and varying from day to day.

(3) Usually there is pain, which may sometimes be severe. But there is restlessness and distress.

(4) Respiration may be shallow or as rapid as 50 per minute.

(5) The sputum is purulent and sometimes streaked with blood.

(6) In the influenzal form, haemoptysis is seen.

(7) Drowsiness and delirium are common.

(8) The disease lasts from 2 to 5 weeks.

Physical signs :

(1) In early stages signs of consolidation are absent, but there may be signs of bronchitis.

(2) Lower lobes are involved with tubular breathing and fine crackling rales.

(3) If extensive consolidation takes place, the percussion will not be impaired.

Complications :

Incomplete resolution may lead to *bronchiectasis*.

Diagnosis :

Lobular pneumonia differs from pneumococcal pneumonia in its insidious onset, and in the history of the antecedent bronchitis. The physical signs are typically bilateral and diffuse.

Prognosis :

The mortality is higher at the extremes of life, especially if the disease is associated with malnutrition, or it supervenes on chronic bronchitis and emphysema, chronic nephritis and heart disease.

Treatment :

General : (1) The patient is kept in bed slightly propped up in a well-ventilated room.

(2) Plenty of fluid drinks should be administered.

(3) Liquid diet should be given.

Curative :

(1) *Aconite*. First stage with severe chill, high fever, severe dyspnoea and dry teasing cough.

(2) **Phosphorus**. For all stages ; but specially for the 3rd stage, when bronchial symptoms are prominent and oedema sets in without pain.

(3) **Mercurius**. When fever has become subdued, but the pain and dyspnoea remain. To be given especially when pneumonia is complicated with bronchitis.

(4) **Belladonna** is preferable to *Aconite* in the case of old people. This remedy is given especially, when there are cerebral symptoms (*Hyoscyamus*, if *Belladonna* does not work).

(5) **Bryonia**. At the 2nd stage, when croupous exudation takes place and fever has abated. The patient becomes quiet. This remedy steps in after 'Aconite' for painful cough, violent stitching pains in the sides of chest, dry throat, great thirst with liver involvement.

(6) **Arsenicum** is given in advanced cases, when gangrene threatens, or there is a tendency to collapse, with great exhaustion and diarrhoea.

(7) **Ipecac**. In the second stage when the cough is suffocative, and there is copious secretion of mucus. Chest seems full of phlegm but there is little expectoration ; often cough is accompanied by vomiting of mucus.

(8) **Antim Tart**. This is the main remedy in broncho-pneumonia with great dyspnoea, wheezing respiration, constant rattling of sputum in the chest but no expectoration. Ultimately cough ceases, but there is rattling.

(9) **Lycopodium**. When chest seems full of mucus with little expectoration ; the patient is worse from 4 to 8 p.m. and when lying on right side.

PULMONARY TUBERCULOSIS

(Phthisis)

Definition :

Tuberculosis is an infectious disease, caused by the tubercle bacillus, characterised by inflammation, abscess formation, cavities,

fibrosis and calcifications. Pulmonary tuberculosis is the form, which dominates over others. The most ventilated middle part of the lung is the usual seat of the primary focus, and this primary infection usually heals. Later in about 2 to 3% of infected individuals an indigenous and exogenous reinfection causes clinical pulmonary tuberculosis which invariably starts in the upper parts of the lungs.

Etiology :

The chief cause is the infection with tubercle bacilli by frequent contacts with tubercular patients. The predisposing causes for the development of the disease are :

(1) Acquired debility, brought about by want of nourishing food, pure air, and dissipations of all kinds.

(2) Diseases like acute eruptive fevers, typhus, whooping cough, pleurisy, pneumonia, which lower resistance.

(3) Too frequent pregnancies, and too long-continued nursing. Tuberculosis, however, is caused by infection from a specific microbe, called myco-bacterium tuberculosis (Koch's tubercle bacillus). The common source of infection is the sputum and the contaminated food. The organism is of three types :

- (i) the human type (from human beings) which usually carries the infection,
- (ii) the bovine type (from the cattle) which is rare, and
- (iii) the avian type (from the birds).

The infection is transmitted from person to person by means of sputum, which usually contains millions of tubercle Bacilli, when the patient coughs. The sputum, containing tubercle bacilli, is projected in the air in the form of an invisible spray of thousands of tiny micro-droplets which when inhaled by persons nearby cause further spread of infection. That is how the children catch infection from their tubercular parents and relations. The disease is not inherited. Therefore, it is necessary that the patients should always spit in a spittoon, containing a disinfectant, and always place a handkerchief on their mouth, while coughing. The handkerchief should be boiled daily in water for 5 minutes before any person is allowed to touch it.

Types of pulmonary Tuberculosis :

(a) **Primary infection in children.** The bacilli, on entering the lungs through the inspired air, settle around the bronchioles, usually in the lower part of the upper lobe. The first stage of development is the exudative process in one or several areas. The primary focus is formed with the corresponding lymph glands, (Sometimes, the primary focus is in the intestines in the ileo-caecal region through infected milk). This primary infection may not cause immediate symptoms and usually passes unnoticed. Sometimes, there occurs a moderate degree of ill-health and mental and physical weakness with recurrent attacks of cold and cough, associated with a rise in temperature, lasting for a few days only. This brief illness may be attributed to some other cause at that time. In a vast majority of cases, the primary infection heals completely. But occasionally, it may extend and cause destruction, cavitation and even death, or it may cause clinical pulmonary tuberculosis. The primary type has a less tendency to cavitation of the lungs than the adult type (secondary type). This focus heals by calcification and fibrosis, but takes months and years to do so.

(b) **Primary Infection in adults.** But in young adults, the primary infection is more virulent and the peeling off of the lesion is less perfect. Often, there are relapses with moderate degree of fever and cough. Sometimes, there is a progressive extension of the tubercular process from the primary focus into the bronchi or the blood-vessels, causing *tuberculosis* i.e. *tuberculous pneumonia* or *acute miliary tuberculosis* : organisms from the primary focus may be deposited in spleen, kidneys, liver and bones and also joints, and may heal in the form of calcified nodules.

(c) **Reinfection of tuberculosis in adults.** This re-infection may either be due to the activation of an infection received in childhood in the lungs or elsewhere, but more often it is a recent infection by inhalation from a tubercular person. There is a blending of exudative and productive lesions in this type. Caseation and cavitation do occur and fibrotic changes take place, but there is little tendency to calcification. The majority of cases, met with in young people, are of this type.

Clinical Features :

Earlier symptoms, arousing suspicion of this disease, are unexplainable debility and emaciation, languor, anaemia, unexpected dyspepsia and slight elevation of temperature in the evening, but no temperature in the morning :

(1) Usually the onset is insidious, cough, sputum, haemoptysis and breathlessness usually develop as the disease advances.

(2) Systemic symptoms, such as, weight loss, fever and sweating also reflect advanced disease. Rigors are unusual.

(3) The disease is revealed by screening, at which stage no symptoms are obvious.

(4) Chest pain is generally uncommon.

(5) Cough may be stimulated by mucoid or by purulent sputum by bronchial disease, or by pressure of tuberculous glands.

(6) Haemoptysis may often occur early in the disease.

(7) Breathlessness develops with widespread fibrosis.

(8) Pulmonary tuberculosis sometimes presents itself as an acute pneumonia.

The physical findings are :

(1) With very advanced disease there may be extreme weight loss.

(2) In such advanced cases there may be remittent or intermittent fever, and the morning temperature may be higher than the evening temperature.

(3) In most cases, however, there is little fever plus little change in pulse rate or respiration.

(4) Clubbing of fingers is unusual.

(5) The characteristic lung signs are the presence of fine crepitations.

(6) There may be signs of consolidation, fibrosis, or cavities, the breath sounds may be cavernous in the upper and posterior parts of the lungs.

(7) Miliary tuberculosis and meningitis may complicate tuberculosis at any stage.

ACUTE & CHRONIC MILIARY TUBERCULOSIS

In pulmonary tuberculosis, various lesions appear. One of these takes the form of the adult type as acute and *Chronic Miliary Tuberculosis*. This disease starts with a primary focus in bronchial glands with the formation of a cheesy mass, known as caseation, and then develops into an abscess filled with tuberculous 'pus', or calcification. Cavities gradually result from the process, and may be no larger than a pea or may occupy the whole of one or more lobes. The disease spreads due to the local erosion of a vein. The lungs are thus studded with minute grey tubercles. The foci are found in large numbers around the old foci of the disease, and in very many acute cases death occurs.

In other cases, the disease becomes chronic with early treatment and diagnosis. But it is questionable, whether real chronic miliary tuberculosis does exist. The major clinical features are prolonged irregular toxæmia with recurrent pyrexia, associated with sweating, loss of appetite, loss of weight, cough, and sometimes, pleuritic pain, enlarged spleen, anaemia, and sometimes enlarged glands. It is very often difficult to demonstrate tubercle bacilli in these cases.

Diagnosis :

Laboratory tests of blood anaemia, leucocytosis, sputum and stool tests for tubercle bacilli will decide the diagnosis.

Radiological Test :

The X-ray picture will show shadows, if there is any consolidation, cavity, or diffuse mottling of the lung tissue.

Prognosis :

With early treatment and diagnosis, further progress of this disease may be stopped. Some cases get well soon ; while others even under the safe and most careful treatment, terminate fatally. However, the percentage of death is now very low.

Treatment :

General : (1) Fresh air, absolute rest in bed in the open air helpful.

(2) A good nourishing diet that is easily digestible is essential.

(3) The skin should be rubbed and washed daily.

(4) Reading of loose literature and other excitements should be avoided.

(5) The case should always be referred to the nearest T. B. Clinic for X-ray, chest and sputum examination and for prevention of infection to other members of the family.

Curative :

(1) **Arsenicum**. This remedy is to be cautiously given. The symptoms calling for it are :—extreme prostration, emaciation, thirst ; oppressed breathing and sharp, darting pains which are worse by motion ; cough is worse at night, on lying down, and in the morning on rising ; the paroxysms being long ; expectoration is profuse, greenish or salty ; much anxiety.

(2) **Bryonia**. Rarely used in true tuberculosis. But as tuberculosis is often complicated with pleurisy, it is the correct remedy in the fibroid form, the chief symptom being teasing dry cough ; sharp stitching pain in chest aggravated by the slightest motion, even of breathing ; painful larynx ; perspiration and pains at the apex of both lungs ; inability to take deep breath on account of these pains.

(3) **Calcarea Carb**. A deep-acting constitutional remedy, its special seat of action being the middle of the right lung. It suits patients of pale and sallow complexion, of phlegmatic temperament and those whose constitutions have broken down by frequent and profuse menstruation or miscarriages. Other conditions are : loud rales heard all over the chest ; cough loose and rattling, or short and dry in the evening ; much soreness of chest and fatigue, nose-bleed ; eruptive skin condition, spots, itching pimples, etc. sweat on least exertion, profuse and exhaustive, predisposition to take cold easily. All symptoms are worse from cold, mentally hopeful and optimistic.

(4) **Dulcamara.** In cases of catarrhal phthisis, when the patient feels pains on catching slightest cold in damp weather, and the cough is loose with abundant muco-viscid expectoration which is tough and greenish; violent oppression of chest; cough is worse from lying down, from warmth, and better in the open air.

(5) **Kali Carb.** This is a remedy, when cardiac or dropsical symptoms complicate, and the patient's face is bloated and has puffiness of eyelids. The chief symptoms are: weakness of chest; whistling respiration which prevents sleep; expectoration is profuse, purulent and sometimes blood-streaked; cough is worse from 3 a.m.; to 5 a.m.; stitching pains through chest, with difficulty in expectoration which comes up and slips back, or flies in lumps from the mouth, while coughing.

(6) **Lycopodium.** Useful in cases where tuberculosis follows pneumonia and there are signs of cough persistently day and night with expectoration of large quantities of yellowish pus which tastes salty and smell foul; night-sweats and rattling breathing; the upper part of the body is emaciated; an early morning acid-smelling sweat and afternoon fever with hot hands and burning soles; constipation and debility.

(7) **Nitric Acid.** An anti-tubercular remedy before the formation of a cavity. It has sudden rush of blood to the chest; hectic fever; soreness of chest; frequent haemorrhages and bright red blood; dyspnoea; hoarseness; diarrhoea; worse in the morning; sharp stitching pains through the right chest to the scapula; sweat is worse at night and exhausts the patient; the skin is cold in the morning; cough at night, sometimes dry and sometimes loose and rattling; expectoration, offensive, dirty green, blood-streaked and purulent.

(8) **Arsenicum, Sulphur and Phosphorus** should never be used in pulmonary tuberculosis, unless carefully indicated. The chief symptoms for the selection of Phosphorus are: great hoarseness with evening aggravation; weak chest with tightness, cough, copious, blood-streaked sputum, hectic fever; burning between shoulder blades; flushing of face towards evening.

(9) **Sanguinaria.** It has hectic fever at about 4 p.m. ; bright circumscribed flush of cheeks ; dry cough caused by tickling in larynx and upper part of chest ; burning and fulness in the upper part of chest, as if full of blood ; sharp stitching pains in the right lung near about the nipple ; soreness of chest muscles ; dyspnoea ; dry or loose cough but expectoration difficult, worse on lying down ; in later stages, it is indicated, when sputum is offensive ; persistent coldness of extremities and burning in chest.

(10) **Silicea.** Indicated in the suppurative stage of tuberculosis, when there is low vital power and the patient finds it impossible to keep warm ; cough is dry at first and then loose ; copious rattling in chest and offensive mucus thrown out. There are large cavities in lungs, profuse night sweats and hectic or suppurative fever.

(11) **Stannum.** Suited to catarrhal cases of scrofulous persons. The signs are marked hectic fever ; chills at 10 a.m. ; flushed and hot in the evening ; worse about 4 or 5 in the morning ; weakness is the chief characteristic ; the patient is so weak that he cannot talk for more than two or three minutes at a time ; hoarseness ; paroxysmal cough caused by mucus in chest ; expectoration is profuse and of yellowish green colour, sweet in taste ; empty feeling in chest.

(12) **Sulphur.** Used in early cases of pulmonary tuberculosis with dulness on percussion over the apex of the two lungs and diminished chest motion. The guiding symptoms are : hot feeling of the body ; desire for air ; flushes of heat and pain from left nipple through and to the back ; cough is mostly dry, worse in evening excited by talking with occasional profuse discharges of mucus ; profuse night sweats with offensive colour ; emaciation, weakness, and languor and burning of soles and palms.

(13) Other remedies are : Bacilinum, Tuberculinum, Arsenic Iodide (initial remedy) ; Laurocerasus ; Yerba Santa (Eriodictyon) ; Apis ; Apocynum ; Arg Nit ; Belladonna ; Calc. phos ; Cuprum ; Helleborus ; Iodoform ; Opium ; Zincum.

PULMONARY EMPHYSEMA

Definition :

Pulmonary Emphysema is a condition of the lung in which

there is increase in the air sacs or spaces near to bronchioles either from dilatation or from distraction of the Alveolar walls.

Etiology and pathogenesis :

While failure of alveolar development in childhood (hypoplasia) *atrophy*, *over-inflation* and *destruction* may be important factors in the genesis of emphysema, the ultimate cause is unknown. The distribution of emphysema within the spaces, distal to the terminal bronchioles, may be

- (1) central or Centri-lobular,
- (2) peripheral (peri-acinar or para-septal),
- (3) total (pan-acinar), and

(4) irregular (scar). Emphysema in all these forms may exist without air trapping. It is either due to alveolar *atrophy* or *hyper-inflation* (hyper-trophy) and is not necessarily associated with impaired function in life. In the aged, in the senile emphysema, the alveoli are larger, their wall is smoother and simpler, but the capillaries are reduced in number. The total lung volume is reduced. There is no airway obstruction.

Para-septal emphysema is rare and causes no symptoms, but it may give rise to spontaneous pneumothorax.

In the Centri-lobular emphysema the alveoli in the centre are enlarged. It may be widespread. No disturbance of function results from this lesion. It might be a major cause of gas exchange in chronic bronchitis.

When part of a lung is collapsed or removed, there is enlargement by over-inflation of the air spaces in the remaining lung to fill the space. This is called *Compensatory emphysema*. The larger blood vessels are more widely separated. The heart is displaced. This form of emphysema is reversible.

PRIMARY EMPHYSEMA

Definition :

Primary emphysema is characterised by widespread para-septal emphysema of unknown cause, in which there is failure of the lung

collapse and in which there is an associate disease of the airways. In life there is always obstruction in air trapping.

Etiology :

It is almost always associated with chronic bronchitis. The disease may become manifest in early middle age. Primary Emphysema has been observed to follow in the wake of a diffuse infiltration of the lungs.

Clinical Features with Pathology :

Bullae are often found. In primary emphysema, the bronchi are normal but the alveoli are large, their walls are thin and often interrupted. Atrophy results in considerable reduction in the number of alveoli.

(1) Breathlessness is the cardinal symptom and may be insidious or quite rapid in onset without history of any respiratory disease.

(2) It is progressive and may become incapacitating on the slightest exertion.

(3) Cough is casual and sputum may develop.

(4) There may be much loss of weight.

On physical examination the patient presents a striking and anxiety-driven appearance and is often thin.

(1) The chest is hyper-inflated ; breathing is often laboured, the expiration is prolonged, the inspiration and expiration are both limited.

(2) Clubbing of fingers is un-usual.

(3) Percussion note is resonant.

(4) Wheeze may be heard.

(5) Heart sounds are usually distant but normal.

Complications :

Primary emphysema may be complicated by *spontaneous pneumothorax* which aggravates breathlessness. Some patients develop *oedema* without a rise in systemic venous pressure. *Polycythaemia* and right *Ventricular hypertrophy* are less common.

Diagnosis :

The *chest radiograph* is characteristic in widespread emphysema and is essential to the diagnosis. There is excess of air in the lungs which causes a low flat diaphragm which moves less than 3 cm. from maximum inspiration to expiration. There is a large translucent space which may be seen in the picture.

Prognosis :

If repeated attacks of bronchitis can be prevented, the progress of the disease can be stopped. Complete cure, however, is not likely. Congestive heart failure and severe bronchitis are unfavourable symptoms.

Treatment :

General. (1) Maintain good hygienic surroundings.

(2) The diet should particularly consist of meat with a small amount of fluids and other nourishing diet.

Curative :

As the factors that cause chronic emphysema are bronchitis or asthma, the latter requires appropriate treatment. Reference to these sections should, therefore, be made for selective remedies. A few more are indicated below :

(1) **Arsenicum.** Highest degree of dyspnoea, even up to suffocation with great anxiety and restlessness; face cyanotic and covered with cold perspiration.

(2) **Carbo Veg.** (After Arsenic). great dyspnoea; cough in violent spells, with great anxiety, profuse expectoration and under great exertion.

(3) **China Ars.** When attacks are regular at 9 O' clock; suffocating spells in tuberculosis; limbs icy-cold; cold clammy sweat all over; greatest anxiety and unquenchable thirst; must sit up bent forward, preferably at the open window.

(4) **Lachesis.** Follows well after *Arsenic*. Covering around the neck and the chest is unbearable; symptoms worse after sleep; torturing cough, until some little tough phlegm is raised; offensive stool.

(5) **Senega.** Feeling, as if the thorax were too narrow, with constant inclination to widen it by deep inhalation.

(6) **Naphthalene.** A good remedy for initial cases.

PULMONARY INFARCTION

Definition :

Pulmonary infarction is haemorrhagic necrosis of the lung distal to an occlusion of the pulmonary artery.

Etiology & Pathology :

Pulmonary infarction does not always follow occlusion of a branch of the pulmonary artery because of the collateral supply of blood from other branches of the same artery or because of the bronchial artery supply. Conditions required for infarction to develop are not known. But an important factor is an elevated pulmonary venous pressure *e.g.* with mitral stenosis or left ventricular failure. The commonest form of occlusion leading to infarction is thrombotic, usually embolic, from a peripheral venous source or the right heart *e.g.* right atrium in atrial fibrillation. Sometimes the thrombosis is local, occurring in the branch of the pulmonary artery in which atheroma has developed as a result of long-standing pulmonary disease or heart disease, *e.g.* pulmonary hypertension, which may be pulmonary or secondary to congenital heart disease. Local obstruction of pulmonary vessels is also encountered in polycythaemia and sickle-cell anaemia. Other forms of embolism are rare, *e.g.* fat embolism, which may follow severe trauma. Pulmonary infarction is usually seen in lower part of the lung.

Predisposing causes to the formation of primary thrombosis and infarction are often found in, *e.g.*

- (1) Immobilization.
- (2) Surgery.
- (3) Pregnancy.
- (4) Contraceptive pills.
- (5) Malignancy.
- (6) Evidence of left heart disease or pulmonary hypertension.

Clinical features :

(1) This varies greatly, for there may be no symptoms at all or a dramatic onset with pleuritic chest pain and breathlessness may occur.

(2) 50% of the patients who have symptoms will have haemoptysis (not profuse) persisting for a few days.

(3) There may be fever up to 102°F, but this is frequently absent.

(4) Tachycardia and arrhythmia are not infrequent, if there have been multiple emboli.

(5) Tachypnoea is variable.

(6) A pleural friction rub, localised crepitations or frank signs of consolidation are often detected either on one or both sides.

(7) There may be central cyanosis, signs of a low cardiac output with a cold periphery and systemic hypotension, right ventricular stress or failure with a right ventricular filling sound and a high systemic venous pressure.

(8) Peripheral venous thrombosis is present in at least 50% of cases.

(9) There may be septic infarction due to pyaemia.

(10) Pleural effusion often develops and may be the presenting clinical feature.

Diff. Diagnosis :

Pulmonary infarction must be distinguished :

(1) From *dry pleurisy of infective origin*, which may be impossible, unless there is haemoptysis in infarction. But the existence of venous thrombosis in a lower limb favours the diagnosis of infarction.

(2) From pneumonia by the history and the character of sputum.

(3) From *pneumothorax* by the characteristic physical and radiological signs.

Prognosis :

The outcome is difficult to predict.

Treatment :

The common effective remedies are :

- (1) Kali mur 30 (in repeated doses),
- (2) Ammonium carb. 200,
- (3) Lachesis 30,
- (4) Bothrops 200, and
- (5) Sulphur 30.

ATELECTASIS OR COLLAPSE**Definition :**

This is a condition in which the volume of the lung is diminished due to the failure of, or reduction in aeration.

Pathogenesis (its origin and development) :

Atelectasis may be congenital or acquired. *Congenital atelectasis* exists when the foetal lung fails to inflate at birth and remains totally or partially airless. With prematurity this is common, and when incomplete, it may give rise to the respiratory distress syndrome or hyaline (transparent) membrane disease. Absence or reduction of lipo-protein which lines the air surfaces is the usual cause of this disorder. The lungs are extremely stiff, and high pressures are needed to inflate them. Mechanical ventilation, oxygen therapy and other means may be successful on occasions.

Acquired atelectasis :

This is of two types :

(i) **Relaxation Collapse.** It arises when air is expelled from the lung by elastic retraction, when the pleural space is enlarged by a pneumothorax or effusion or with large space occupying lesions like diaphragmatic hernia.

(ii) **Absorption Collapse** is usually due to bronchial obstruction after which air will always be absorbed distant from the obstruction, unless there is collateral ventilation of the distal segment or subsegment. Air is absorbed, because the total gas consumption of venous blood is about 50-60 mm. less than atmospheric or tapped air. Oxygen breathing provides a greater pressure gradient from air in the trapped air spaces to capillary blood, and absorption becomes even more rapid. This is one factor responsible for rapid collapse of parts of the basal segments of the lung in the oxygen breathing pilots exposed to gravitational pull in high speed aircraft on the turn. Collapse after bronchial occlusion proceeds over a few hours in lungs previously containing air. Complete obstruction of a main bronchus always leads to collapse of the whole lung (massive collapse) and the lobe to lobar collapse.

The lung while it is airless, may sometimes contain a variable amount of exudate or oedema fluid. Moreover the bronchus, distal to the occlusion, often distends with mucus secreted within its lumen. Sometimes in pneumonia and infarction, varying degrees of shrinkage of the lung accompanies consolidation without necessarily any bronchial occlusion (non-obstructive atelectasis). Segmental or subsegmental collapse will be prevented by collateral ventilation through alveolar pores and communications between terminal bronchioles and adjacent alveoli. Such communications are limited by connective tissue septa which are more frequent in the middle lobe and the left upper lobe. These segments, therefore, are more liable to collapse. Oedema and exudation also interfere with collateral ventilation and this may predispose to atelectasis.

Clinical features :

(1) There may be no symptoms at all, if atelectasis is slow in developing. If, however, the underlying function is impaired or parts of lung larger than segments suddenly collapse, then *breathlessness* may be a feature.

(2) Shunting of blood through a collapsed lung or lobe may cause a temporary *cyanosis*.

(3) If a large lobe is involved, signs of *consolidation* appear, and the shift of the mediastinum towards the abnormal side may be detected.

(4) Sudden collapse of a lobe may resemble a massive collapse.

(5) Obstruction of the middle lobe by mucus plugs or tubercular nodes lead to atelectasis, which is usually partial and develops in childhood.

(6) Subsequently recurrent pneumonia, cough and sputum may be a feature.

(7) Recurrent haemoptysis from the damaged branches of the middle lobe bronchus is another presenting feature.

(8) In passive collapse, which often follows anaesthesia and surgery, there is pain in the lower thorax behind the sternum, coupled with severe dyspnoea, cyanosis, and restlessness.

(9) Tachypnoea, tachycardia and fever may ensue.

(10) The affected side is immobile. There is dullness to percussion. Breath sounds are either diminished or there are frank signs of consolidation.

(11) Massive collapse may be complicated by infection and suppuration precipitated by respiratory failure.

(12) If infection develops, then permanent bronchiectasis, ensues, even though obstruction may later be relieved.

Diagnosis :

A characteristic homogeneous shadow of the shrunken lung lobe or segment is usually seen on the chest radiograph.

Atelectasis of the lung or lobe must be distinguished from other massive lesions in the chest, such as, *pleural effusion*, *pneumothorax* and *lobar pneumonia* or *infection*. Proper attention to the clinical and radiological findings usually allows easy differentiation.

Treatment :

It is generally a surgical case, but homoeopathic remedies can be used internally to get full recovery.

(1) *Antim Ars* : For paralysis and emphysema, particularly, when associated with influenza.

(2) *Antim. Tart.* ; *Grindelia* ; *Lob. Purp* ; *Solania* : are other useful remedies for paralytic conditions.

(3) For obstructive congestion, the following remedies will be useful :

- (i) Arsenic Iodide (Weak heart).
- (ii) Digitalis (Oedema of feet).
- (iii) Lycopodium (foreign body).
- (iv) Carbo. Veg : (Blueness and depression).

PNEUMOCONIOSIS

(Occupational Lung Disease)

Definition :

Pneumoconiosis is a morbid condition produced by inhaling dispersed solid particles or liquid droplets, or a mixture of both (called aerosol) in which particles or droplets are small enough to give a stable aerial suspension.

General Causes and other Considerations :

The pneumoconiosis is generally the result of inhalation of dust particles at work. Inhalation of aerosol (dispersed solid particles or liquid droplets or a mixture of both suspended in the air) created by occupations, such as farming, milling and malting has been recently found to be associated with broncho-pulmonary disease. The occupations associated with pneumoconiosis in the U.K. however, are coal miners, asbestos workers and other occupations, involving *mining* and quarrying. In general, particles or droplets of a size less than 50 microns in diameter are deposited in the respiratory tract. These may consist of fungi or viruses. The general effects of inhalation of these particles are :

- (1) mucus hypersecretion leading to chronic bronchitis ;
- (2) broncho constriction, which occurs with cotton dust ;
- (3) pulmonary or broncho-pulmonary oedema due to the inflammatory process by inhaling gases and fine particles, e.g. ammonia, chlorine, nitrogen and sulphur oxides.

Clinical Picture :

(1) Simple pneumoconiosis is not associated with symptoms or physical signs.

(2) When these are present, they indicate that the pneumoconiosis is complicated by chronic bronchitis or progressive massive fibrosis.

(3) Cough, sputum and breathlessness are most likely to be due to chronic bronchitis, while haemoptysis and breathlessness occur with *Progressive Massive Fibrosis*.

(4) Gross form of fibrosis will produce distortion of the lung with production of the physical signs of pulmonary fibrosis.

Diagnosis :

The diagnosis is rather difficult as the radiological appearances of the lung alone are an inadequate assessment. The shadows vary greatly with the amount of the dust. As such, the diagnosis must take into account the occupational history, the clinical findings, and the results of physiological and radiological investigations.

Complications :

Many of the pneumoconioses may be complicated with that of *progressive massive fibrosis* or a rheumatoid pneumoconiosis.

PROGRESSIVE MASSIVE FIBROSIS**Complicated Pneumoconiosis****Definition :**

The development of massive lesions usually in the upper lobes in association with the pneumoconiosis is known as "Progressive massive fibrosis", (P. M. F.) or Complicated pneumoconiosis.

Pathogenesis :

P. M. F. develops in response to a variety of dusts including coal, silica, graphite, kaolin etc. but it is independent of the amount of dust inhaled. There is a concentric deposition of collagen (main constituent of white fibrous tissue) around a central necrotic zone

which may soften and cavitate by evacuation into a bronchus. There is increasing evidence to suggest that this process is the result of an immunological response on the part of the host to tissue modified by dust deposition, although the mechanism is unknown. At one time, it was thought that the tissue response was conditioned by tuberculous infection. This is now considered unlikely because *Mycobacterium tuberculosis* is rarely found in the sputum. The possibility, however, remains that pneumoconiosis may reduce resistance to infection with *Myco. tuberculosis* in general and to anonymous forms of *Myco. tuberculosis* in particular.

Symptoms, Signs and Diagnosis

(1) The incidence of P. M. F. may be as high as 50% of workers suffering from pneumoconiosis.

(2) The severer forms of P. M. F. produce a restrictive disorder of ventilatory capacity with breathlessness.

(3) In severer cases, there is respiratory failure.

(4) Haemoptysis is a feature of P. M. F.

(5) There may also be diffuse *fibrosis* and *bronchiectasis* and in more severe cases a rise in pulmonary vascular resistance with right ventricular hypertrophy and failure.

(6) In chest radiograph, tense rounded shadows are seen, which may be single or multiple and more concentrated in the upper than the lower zones. Large shadows may coalesce or cavitate. They may also be calcified. P. M. F. must be differentiated from *carcinoma of the lung* especially when the shadow is single. Rapid changes in the shadow favour carcinoma.

PULMONARY FIBROSIS

Definition :

This pneumoconiosis is a disease in which the lung tissue is replaced by a fibrous tissue consisting of disintegrated macrophages, asbestos fibrils and dust particles within the respiratory bronchioli.

Pathology :

A fibrotic network develops mainly in lower lobes, in which asbestos bodies may be found. "Honey comb" changes may develop. This fibrous network usually involves the adjacent pleura as well. Fibrosis may exert a profound effect on the function of the lung before radiological changes can be seen. The earliest change is a reduction in gas exchange. With further impairment of function, the lung compliance is reduced and a restrictive defect of ventilatory capacity becomes measurable. Respiratory failure and terminal right ventricular failure may develop.

Clinical features :

(1) The first symptom is breathlessness, which may become extremely severe.

(2) Dry cough, loss of weight and fatigue follow.

(3) Finger clubbing is commonly found and crepitations are characteristically heard over the bases of the lungs.

(4) Respiratory failure may be manifested as cyanosis, at first on exertion.

(5) The signs of right ventricular failure are late manifestations.

(6) Other physical signs in this pneumoconiosis include those due to *pleural effusion* and pleural thickening. Signs of *tuberculosis* and carcinoma of the lung may also coexist.

Diagnosis :

Asbestos bodies are an irregular finding in the sputum. The radiological appearance of the lungs vary from pinhead and micronodular shadows, mainly in the lower parts of the lungs, to gross linear lung shadowing with distortion of the lung and pleura. Calcification may be seen in the pleura. A history of exposure to asbestos and the signs given above, the radiological changes usually make up the physical diagnosis.

Prognosis :

A few patients develop superimposed pulmonary tuberculosis, but with treatment this should not affect prognosis. Carcinoma of

the lung will develop in most cases, but it rarely affects a non-smoker. With either growth, the prognosis is hopeless.

Note : Rheumatoid pneumoconiosis is the development of round lesions throughout the lungs by a variety of dusts such as those encountered in coal mines, potteries, sand blasting, iron foundries and even asbestos industries.

Treatment :

Refer to sections on 'Asthma', 'Bronchitis', and 'Bronchiectasis' 'Emphysema' and pulmonary fibrosis. Also refer to the following remedies :

(1) *Carduus Maricus* and *Natrum Ars* (Miner's Asthma)

(2) *Ipecac.* ; *Kali Carb.* ; *Pothos Foetidus* and *Sambucus Nigra* (Inhalation of dust, Millar's Asthma).

PULMONARY FUNGUS DISEASE

Some pulmonary diseases are caused by several fungi and are manifested by progressive loss of weight, cough and often haemoptysis, giving the impression of a resemblance to pulmonary tuberculosis. Some of these are :—

(i) ACTINO-MYCOSIS FUNGUS

(Ray-Fungus Disease)

Definition :

This is a chronic suppurative disease of localised origin tending to spread into adjacent bases. The causative organism is *Actinomyces israelii*, and the clinical types of disease are chiefly facial, dermal, pulmonary and abdominal.

Etiology :

In 1977, Bollinger described, that the organism. *Actino-mycetes bovis* was the first micro-organism producing large, hard masses occurring about the jaw bones of cattle. In the following year Walf and Israel found a similar organism now known as *A israelii*. There is reason to believe that *A. israelii*, normally obtaining in food from

dead and decaying animal or plant may become invasive, when a tissue is injured or otherwise rendered susceptible.

Clinical features :

These depend on the anatomical distribution of the *granulomata*.

(a) **Cervico-facial.** (1) The jaw is infected and presents a swelling very like a sarcoma, affecting the lymph nodes and submandibular tissues more than the jaw.

(2) The swelling is tender and somewhat painful.

(3) With the progress of the disease abscesses form to give rise to sinuses.

(4) Sometimes the tonsils are the site of the original disease.

(b) **Dermal.** (1) Granulomata appear in the skin and subcutaneous tissues alone or complicate the disease in deeper structures.

(2) Solitary lesions occur following trauma from an infected tooth or the hands.

(3) Similar skin lesions appear frequently in association with primary infection of deeper structures.

(c) **Pulmonary.** (1) Basal physical signs accompany cough, fever and haemoptysis.

(2) In some cases pleural effusion develops.

(3) The clinical nature resembles tuberculosis.

(4) In the later stages of the disease there is wasting intermittent fever, purulent expectoration and progressive lung infiltration.

(5) Periostitis of the ribs seen radiologically is strongly suggestive of actino mycosis.

(d) **Abdominal.** (1) The favourite site of the infection is the *caecum* and appendix region, or

(2) There is pain in the right iliac fossa.

(3) There is a tendency for the infection to spread from the ileo-caecal region to peritoneum or to the abdominal wall or to the liver or to ovary and fallopian tubes.

(e) **Cerebral.** The brain, like skin, may be infected by direct spread from an adjacent lesion or by way of a pyaemic-process.

Diagnosis :

This is based on the type of infection, and is determined by examining the sputum. The blood serum gives a special agglutinin reaction.

Treatment :

As under 'Lung abscesses' and 'Bronchitis'. Also refer to the following remedies :

- (1) **Hekla** (marked action upon the jaws).
- (2) **Hipposinum** useful in pyaemia.
- (3) **Kali Iodide** (syphilitic origin).
- (4) **Kali bichromicum** (Intestine).
- (5) **Nitric Acid** (Soreness at lower end of sternum)

(ii) ECHINOCOCCUS

(Hydatid Disease)

Definition :

Echinococcus is occasionally a pulmonary disease, caused by a species of tapeworms, called *Echinococcus granulosus*, and *Echinococcus multilocularis*, characterised by the formation of cysts in the base of the right lung. It is prevalent throughout the world and is particularly common in cattle or sheep rearing countries.

Etiology :

Infection with unilocular cyst of *Echinococcus granulosus* is widespread in an irregular way throughout the world and is particularly common in cattle & sheep-rearing countries such as, Argentina, South Africa and Australia. It occurs in many parts of Europe and the Middle-East.

Infection with cysts of *Echinococcus multilocularis* is much more restricted and is largely confined to Middle and Eastern Europe and also from South America, Australia and England.

The adult worm lives in the small intestine of the definite host, usually the dog, the fox, the wolf or the cat. The animals become infected, by ingesting viscera of the intermediate hosts, including cattle and sheep, which are infested by the larvae of the worm. Eggs are discharged in the faeces of the hosts and are swallowed by man following direct contamination, especially from dogs.

After the egg is swallowed, the larva escapes into the duodenum and migrates through the intestinal wall. It is carried into the mesenteric vessels and lodged in the liver and the lungs. Larvae may survive and develop slowly in the tissues over many years as 'hydatid cysts'.

Signs and Symptoms :

(1) The clinical effects of the presence of hydatid cyst are commonly the results of local pressure or sensitivity reactions.

(2) Pus appears only if the dead larva becomes secondarily infected.

(3) Where the cyst is developing, local tissue damage may occur, and large cysts may develop in the liver or the lungs.

(4) In some regions, the growing cysts may give rise to signs at an early stage, or there may be no perceptible signs.

(5) The bone may have cellular cysts and this may lead to erosion of the bone or its spontaneous fracture.

(6) Hydatid cysts may cause hepato-megaly.

(7) Large cysts in the liver and the lungs may be associated with pleural effusions or with the rupture of the cyst into bronchus leading to sudden coughing up of quantities of saline fluid containing cyst debris.

(8) Sometimes alveolar hydatid may develop in the lungs and other organs and sometimes in the bones. Ultimately it may take a turn to slowly developing carcinoma.

(9) Eosinophilia may rise sharply.

Prognosis :

This depends upon the size of the cyst, its growth and its type.

Treatment :

Refer to the section on 'tumours' or cancer and worm diseases.
Also compare :

- (1) Iodine.
- (2) Apis.
- (3) Baryta Carb.
- (4) Kali Bich.
- (5) Calcareo Fluor.
- (6) Calcareo Sulph.
- (7) Calcareo Phos.
- (8) Cuprum Oxydatum and Nux. Vom. alternately.

**(iv) DISEASES AFFECTING THE PLEURA
PLEURITIS**

Definition :

Pleurisy or pleuritis is an inflammation of the pleural membrane, covering the lung and the chest cavity.

Classification :

(a) If the process leads to a fibrinous deposit, it is known as *dry pleurisy*,

(b) if in addition, there is much serous fluid, it is called pleurisy with effusion or *wet pleurisy*, and

(c) if pus formation occurs, the affection is described as purulent pleurisy or *empyema*. It must be noted, however, that these three conditions are in reality the three stages in any given case.

(a) DRY PLEURISY**(Fibrinous pleuritis)****Definition :**

Dry pleurisy is inflammation of the pleura without an increase in pleural fluid.

Etiology :

Inflammation of the pleura is usually secondary to the adjacent disease of the lung, chest wall or subphrenic region.

(2) The commonest lesion leading to dry pleurisy is either specific pneumonia, particularly bacterial, pneumococcal or mycoplasma and viral etc, or even non-specific pneumonias.

(3) Dry pleurisy occurs, however, in association with pulmonary infarction, carcinoma of bronchus, pulmonary tuberculosis, bronchiectasis and less common lung infections.

(4) Lesions of the chest wall resulting from injury, tuberculous osteitis of a rib or epidemic myalgia and sub-phrenic abscess or amoebic hepatitis may be responsible for the inflammatory change.

(5) Rarely systemic disorders, such as, rheumatoid arthritis, or systemic lupus erythematosus may be complicated by pleurisy.

Clinical features :

(1) The onset is often quite sudden with a stitch-like pain in the side.

(2) The pain is aggravated by inspiration, by coughing and sometimes by movements of the trunk.

(3) The pain may be extremely severe, like a knife driven in and limits ventilation, particularly inspiration.

(4) There may be ineffective dry cough which is distressing.

(5) There may be slight fever (100 to 101 F), but this is not invariable.

(6) Breathing tends to be rapid and shallow and the impaired ventilation may aggravate hypoxia (**limited oxygen**) particularly in pneumonia.

(7) Movement of the chest is usually reflexly depressed on the affected side.

(8) A pleural rub is usually heard except when the diaphragmatic pleura is involved.

(9) In these cases the pain is referred to the shoulder or the abdomen.

(10) Dry pleurisy is often followed by pleural effusion.

Complications :

Dry pleurisy may lead to pleural effusion and later to pulmonary fibrosis. Later on, pulmonary tuberculosis may supervene.

Differential Diagnosis :

The pain of pleurisy is to be differentiated from other causes of pains, produced in the chest cavity *e.g.* neuralgia pleurodynia. A careful observation of the case will, however, be of help in correct diagnosis. Fever, distressing cough and friction sounds are the guiding symptoms in dry pleurisy. The pain is of stitching type and increases with deep inspiration lasting until effusion or resolution occurs. The pleural rub disappears on holding breath.

Prognosis :

The immediate prognosis is good, unless complication of a serious nature follows.

PLEURAL EFFUSION

Definition :

A collection of fluid within the pleural space is termed, *pleural effusion*.

Etiology :

Pleural effusions are broadly divisible into two types, *transudates* and *exudates*.

Transudates : (hydrothorax) :

It is a fluid that has passed out of capillaries either into a body cavity (*e.g.* ascitic fluid in the peritoneal cavity) or to the exterior (*e.g.* serum from the surface of a burn). The fluid thus increases in the pleural space by this process from the capillaries due to osmotic changes. Sometimes a transudate may develop in the presence of

pneumothorax due to interference with resorption. A transudate or hydrothorax is often bilateral. The fluid is pale yellow and clear and has a protein content less than 3 g. per 100 ml.

Exudates :

The fluid oozing out through the capillary walls is termed an '*exudate*'. Pleural fluid may increase by exudation, when the capillaries are chiefly involved in an inflammatory or neoplastic process. Pleural effusions of this nature are usually unilateral. The fluid is straw or amber coloured and may clot rapidly after collection. The protein content is usually greater than 3 g. per 100 ml. The most common causes of exudates are pneumonia, pulmonary infarction, pulmonary tuberculosis and bronchiectasis. Less commonly pleural exudates are found with fungal infections, connective tissue diseases, subphrenic abscess, amoebic abscess and pancreatitis. Rare causes are asbestosis, ovarian tumours and myxoedema. Pleural effusions may be blood-stained or consist of frank blood (Haemothorax). They may be milky or chylous (chylothorax) or purulent (pyothorax or empyema).

Symptoms & Signs :

In some cases, the formation of effusion is insidious. In others it is preceded by the signs & symptoms of dry pleurisy. As the fluid collects, the inflamed pleural surfaces become separated and the pain and the rub disappears. Pyrexia may be continued for many weeks with dyspnoea as the chief symptom.

The physical signs do not differ from those found in other varieties of pleural effusion. There is a striking impairment of mobility on the affected side, and, 'flat' dullness to percussion in the lower part of the chest. The upper limit of the dull area reaches the highest point in axilla and then slopes downwards towards the mid-line both in front and behind. The level is higher over the back than over the front of the chest. Over the dull area, the vocal fremitus and breath sounds are completely abolished. Aegophony is heard at the upper limit of the fluid. The heart is displaced towards the unaffected side.

The X-ray appearance of the pleural effusion is characteristic. The fluid forms a dense shadow at the base. The upper border is indefinite but can be seen to slope obliquely upwards and outwards. There is more or less a displacement of the heart away from the side of the effusion.

Diagnosis :

The presence of a pleural effusion can be recognised usually from physical signs, but in some cases it may not be suspected until radiological examination is carried out. Absolute proof of the effusion can only be obtained by the aspiration of fluid.

PLEURAL EFFUSION ASSOCIABLE WITH TUBERCULOSIS

This may occur at any age. Tuberculous pleural effusion has become now much less common. Pleural exudates may follow direct invasion of the pleura by a caseating process in the underlying lung.

Clinical features :

(1) The onset of a tuberculous pleural effusion is similar to that of dry pleurisy. The constitutional symptoms are, however, more pronounced.

(2) Pleuritic pain and dry cough are usually the earliest symptoms, but there may be a preceding period of malaise when constitutional signs may be absent.

(3) When effusion develops, the pain is often relieved.

(4) Large accumulation of fluid may cause severe breathlessness due to restrictive defect of ventilation.

(5) There is fever of moderate degree and may rise to 100 to 101°F.

(6) At the onset of the illness there may be audible friction rub but this usually rapidly disappears as fluid accumulates.

(7) If left untreted, all radiological and clinical signs disappear within a few months, but are followed by acute tuberculosis within five years.

EMPHYEMA

(Purulent Pleural effusion or pyothorax)

Definition :

An empyema is described as presence of purulent exudate in pleural cavity. It may be total or localised to a part of the pleural cavity.

Etiology :

(1) Empyema always results from a spread of *infection* or *inflammatory process* from the lung or some other adjacent structure as a result of pneumococal, staphylococcal, tuberculous or some other specific pneumonia or follow a suppurative pneumonia, lung abscess or bronchiectasis.

(2) Neoplasm may sometimes be the cause.

(3) Empyema may follow a lesion in the mediastinum perforation of the oesophagus or with a lesion such as, carcinoma.

(4) Empyema not uncommonly follows penetrating wounds or infection may be introduced at aspiration or surgery.

(5) It may spread from an osteo-myelitis involving a rib.

(6) Infection under the diaphragm, such as, sub-phrenic abscess or an amoebic abscess should also be considered.

(7) Empyema, occasionally, is a direct complication of Septicaemia.

The organisms most commonly associated are bacteria, *e.g.* strep pneumoniae, strep pyogenes, staph-pyogenes, Myco, tuberculosis, H. influenzae, Salmonella typhi, Esch-coli.

Clinical features :

(1) The onset of empyema may be marked by the symptoms of the primary infection.

(2) Increasing malaise with pleuritic pain, high fever upto 103° F, possibly with rigors may be suggestive.

(3) The signs are those of pleural effusion, but when pleural empyema is prolonged, then weight loss, pallor and clubbing of the nails may develop. The pus may appear as a sub-cutaneous swelling.

(4) The patient may produce large amounts of sputum.

(5) The cough and expectoration may have smell in the breath.

(6) The pleural infection rarely spreads to the mediastinum or ribs.

(7) A sinus may persist, if there is drainage to the exterior.

Diagnosis :

Final confirmation of empyema depends upon the aspiration of pus. Hence a wide-bore needle should be inserted through an intercostal space over the area of maximal dullness on percussion.

The distinction between tuberculous and non-tuberculous cases can be usually made from the radiological changes in the lungs or by the isolation of tubercle bacilli from pus or sputum.

Prognosis :

If an acute empyema remains undetected or inadequately treated, the patient may die as a result of toxic absorption from undrained pus. Alternately, empyema may pass on to the chronic stage and cause general ill-health, recurrent pyrexia, clubbing of fingers and sometimes amyloid disease. A non-tuberculous empyema usually heals quickly. Tuberculous empyema potentially a serious condition, is difficult to treat and slow to heal.

Treatment :

General : (1) Absolute rest in bed,

(2) fomentation of chest to relieve pain,

(3) diet should be soft or semi-solid, but light and nutritious ; give plenty of water to quench the thirst,

(4) apply hot poultices to the affected side.

Curative :

(1) **Belladonna.** Pleurisy of children in congestive types, often accompanied with convulsions, instead of fever. For the 1st stage, when fever and pain return inspite of Aconite.

(2) **Asclepias Tub.** For the 1st stage.

(i) Dry hacking cough,

(ii) Scanty expectoration,

(iii) pains relieved by bending forward. This remedy is next to *Bryonia* in severity and intensity.

(3) **Arnica.** Pleurisy due to external injury, and after fever has abated. The pains still remain.

(4) **Bryonia.** For the 1st stage. Dry-pleuritis during pneumonia or phthisis. In other cases, it should be given after exudation has set in and the fever has abated to same extent by Aconite. The prominent symptoms are short stitching pains, worse from slightest motion ; even breathing is painful and the patient lies on the affected side to relieve this pain.

(5) **Cantharis.** Leading drug in wet pleurisy (2nd stage) with symptoms of :

(i) dyspnoea,

(ii) palpitation,

(iii) profuse sweat,

(iv) weakness,

(v) tendency to fainting, and

(vi) scanty and albuminous urine.

(6) **Arsenicum.** In serous pleurisy (2nd stage) for large accumulation of fluid ; it often gives prompt relief to painful asthmatic respiration. There is great prostration.

(7) **Hepar sulph.** (3rd stage) in purulent exudation and in pleurisy complicated with bronchitis.

(8) **Sulphur**

(i) Sharp stitching pain through the left lung to the back,

(ii) worse lying on back and from the least motion. It follows *Aconite* and *Bryonia* well, especially when well-chosen remedies fail to improve the patient. *Other remedies* are *Abrotanum*, *Apis*, *Carbo. veg* ; *Mercurius* ; *Nitric acid* ; *Rhunculus bulb.* ; *Sabadilla*.

HYDROTHORAX, HAEMOTHORAX, CHYLOTHORAX & PNEUMOTHORAX

HYDROTHORAX

Usually pleural effusion or collection of fluid in the pleural cavity takes place, as a result of pleural infections and inflammation. But when there is a collection of fluid in the pleural cavity as a part of generalised oedema, the condition is known as *Hydrothorax*. These non-inflammatory pleural effusions are due to

- (1) cardiac disorders,
- (2) renal or kidney disease,
- (3) cirrhosis of liver,
- (4) nutritional deficiencies or anaemia, and
- (5) malignant growths.

Etiology :

Hydrothorax may form part of a general dropsy, Bright's disease, cardiac dropsy, new growths, or tumours. The commonest cause, however, is cardiac failure, chronic valvular disease, or from myocardial weakness.

Symptoms & Signs :

There are : often increased dyspnoea and cyanosis. There is usually no fever, when there is no inflammatory condition. The signs are identical with those of serofibrinous pleurisy.

Treatment :

(1) Generally *Apis* (Try *Lactuca Virosa*, if this fails) is indicated in hydrothorax, when there is no fever, or fever has abated, and pains have disappeared.

(2) **Arsenic Iodide**. When dropsy is secondary to heart disease.

(3) **Arsenic**. If there is thirst, anxiety, prostration and chilliness.

(4) **Sulphur**. If the effusion is of some standing ; give this in long-standing cases.

(5) **Fluoric Acid** is also used in hydrothorax.

(6) **Adonis Ver Q.** 5 drops of this medicine in water should be used morning and evening.

HAEMOTHORAX

The presence of blood in pleural cavity constitutes this condition. This is sometimes due to haemorrhagic pleurisy, following infectious fevers, such as small pox, pneumonia, plague, kala-azar, or scarlet fever and tuberculosis. Sudden hydrothorax, when accompanied by shock or collapse, may lead to haemorrhagic pleurisy. Sometimes, injury to chest, or a small leakage from an aortic lesion may be responsible for the presence of blood. The usual cause is a malignant disease of the lungs, pleura or mediastinum and, sometimes, tuberculosis of the lung.

Symptoms & Signs :

Pain and shortness of breath occurs, if blood collects slowly. There is no temperature, if the fluid is not infected. X-ray chest will clear the clinical picture. A massive haemorrhage may bring about sudden collapse. An interesting point is the frequency of excess of eosinophilia in pleural effusions.

Treatment :

- (1) *Millefolium* (Traumatic or sudden haemorrhage).
- (2) *Cactus* (valvular leakage).
- (3) *Hamamelis* (haemorrhage without effort of cough).
- (4) *Acalypha* (Tubercular Haemorrhage).

Note that *Millefolium* can be used in all kinds of haemorrhages.

CHYLOTHORAX

Definition :

Chylothorax is a collection of chyle or lymph in the pleural space.

Etiology & Pathology :

(1) Chylous effusions into the pleura due to the leakage of lymph from the thoracic duct, right lymphatic duct, or bronchomediastinal lymphatic trunk are rare.

(2) Usually chylous effusion result from surgical trauma.

(3) Very rarely injuries in which there is hyperextension of the spine, severe compression of the trunk due to blows or blasts, or penetrating wounds may cause the leak.

(4) Congenital anomalies of the lymphatic ducts, malignant infiltration in the thoracic duct in the thorax or around the sub-clavian vein, aneurysms, tuberculosis, filariasis may be even rarer causes.

Over two litres of chyle may leak into the pleural cavity daily, and if this is removed, the patient may rapidly become depleted of protein, fat, electrolytes and fat-soluble vitamins.

Clinical features :

(1) For varying periods after trauma or quite spontaneously the patient becomes breathless, and the physical signs of pleural effusion are elicited.

(2) The milky fluid rapidly reforms after removal and the loss of essential protein, fat, and fluid with electrolyte gives rise to rapid loss of weight and dehydration.

Diagnosis :

Pleural effusions on aspiration are characteristically milky, opalescent or oily and must be differentiated from pus and from pseudo-chylous effusions. The latter contain an excess only of cholesterol crystals or fat globules due to degenerated cells in chronic effusions which have usually a tuberculous or neoplastic cause.

Treatment :

Iodium is the chief remedy.

PNEUMOTHORAX

Definition :

When there is collection of air in the pleural sac or space, the condition is known as pneumothorax.

Etiology :

A pneumothorax may be spontaneous, traumatic or artificial. Whatever the cause may be, the collection of air may be localised by adhesions or generalised, in which case the whole pleural space contains air.

A pneumothorax is either *closed* (air-tight), or *open*, in which there is a free communication, with the bronchial tree (a broncho-pleural fistula). A *tension pneumothorax* may develop, when a valve mechanism allows air to enter pleural space during inspiration, especially the inspiratory phase of coughing, and prevents escape of air during expiration. This causes progressive and often rapid shift of the mediastinum to the normal side, which impedes ventilation not only on the affected side, but of the contralateral lung and may obstruct the venous return.

Traumatic Pneumothorax :

Both penetrating and non-penetrating injuries may be associated with a pneumothorax. In the latter case there are usually fractured ribs. There is often an associated bleeding into the pleural space—*haemo-pneumothorax*. Severe non-penetrating injuries to the chest may be complicated by rupture of a bronchus and escape of air into the pleura. Surgical procedures in the neck are frequently complicated by a pneumothorax, but simple aspiration of pleural effusions or biopsy is a frequent cause.

Artificial Pneumothorax :

While this was commonly used for the treatment of pulmonary tuberculosis, it is now induced only for diagnostic purposes in order to determine whether a lesion is in the lung or in the parietal pleura or chest wall.

SPONTANEOUS PNEUMOTHORAX**Definition :**

This condition is due to spontaneous escape of air into the pleura as a result of disease, usually of the lung, pleura or oesophagus.

Etiology :

- (1) In majority of cases, this is a congenital defect.
- (2) In some cases, it results from the rupture of an apical sub-pleural bleb or bulla.
- (3) Tall and healthy young men suffer more than women.
- (4) Other predisposing factors are : bronchial occlusion, or bronchial carcinoma, necrosis with rupture of the pleura in staphylococcal pneumonia or acute caseating tuberculosis. In case of pneumonia, the cysts are common, particularly in infants and it is the cyst which ruptures.
- (5) Spontaneous pneumothorax is also associated with congenital cysts, with pneumoconiosis, particularly that associated with aluminium, honeycomb lung, cystic fibrosis, fibroid sarcoidosis of the lung.
- (6) A rare form complicates menstruation, manifesting as a right-sided pneumothorax during the first 2 days of menstruation in women of about 30—40 years of age.
- (7) Endometriosis and a perforated diaphragm may be the cause in some cases.

(8) Adrenocortical steroids and intermittent positive pressure may precipitate a pneumothorax in some cases.

Clinical features :

- (1) There is sudden pleuritic chest pain and breathlessness due to the rupture of an apical bleb. This central chest pain may be severe.
- (2) Cyanosis is much more likely to develop with progressive respiratory failure.
- (3) In some cases there is tachycardia, hypotension and cold extremities.
- (4) The jugular veins are distended, and there is usually a marked shift of the trachea and mediastinum to the normal side

(5) The physical signs are difficult to interpret especially if there is a small volume of air. The shift of the mediastinum to the normal side, the diminished breath sounds and movement with preservation of resonance on the affected side are the most common findings. With very shallow pneumothorax, almost always a clicking or crackling sound may be heard on the left side with the frequency of the heart beat. A spontaneous pneumothorax may be complicated by an effusion.

Treatment :

It should be conducted on general principles.

V. —DISORDERS OF THE DIAPHRAGM

Diaphragm is the most important muscle in the ventilation of the lungs. It is subject to the following disorders, both congenital and acquired :

- (1) Congenital eventration or protrusion of the viscera through the diaphragm.
- (2) Unilateral diaphragmatic paralysis.
- (3) Hiatus hernia or herniation.
- (4) Hiccough or hiccup.

CONGENITAL EVENTRATION

In congenital cases, there is gross deficiency of muscle, usually on the left-hand side which results in an elevated thin fibrous diaphragm which moves paradoxically. There are usually no symptoms, but, when first discovered, eventration has to be differentiated from acquired paralysis. Sometimes eventration may be partial, and is then usually found anteriorly on the right side, when the localised bulge contains liver and resembles pleuropericardial cyst or a hernia through the foramen of Morgagni. If no cause is found for an elevated diaphragm, or if it has been known to be present for a long time, eventration may be assumed.

Unilateral Diaphragmatic Paralysis :

This is usually the result of interruption of the phrenic nerve, mostly by tumours, especially bronchial carcinoma. Birth trauma or surgical interference in the neck or thorax or gross displacement by other lesions, neurological disorders *e.g.* myelitis or other cervical spinal cord lesions, herpes zoster, lead poisoning, poliomyelitis or diphtheria may be responsible. Paralysis may rarely follow measles, typhoid fever, rheumatic fever, and tetanus antitoxin. It is a rare occurrence in pulmonary tuberculosis, and sometimes it develops without any known cause.

Unilateral paralysis is usually asymptomatic. Bilateral paralysis causes breathlessness and distress due to ventilatory failure. It is worse on lying down. With eventration and paralysis, the diaphragm is not only elevated, but can be seen to move paradoxically upwards further on sniffing. Paralysis may be distinguished from eventration by possession of a previously normal radiological appearance or may be assumed in the context of the clinical state. It must also be differentiated from displacement by disease above or below. Elevation of the diaphragm accompanies atelectasis or fibrosis of a lobe or lung or resection (surgical excision). It is also found with pulmonary infarction and in certain cases of lupus erythematosus. It also develops with lesions below the diaphragm, *i.e.* sub-phrenic abscess, liver abscess, tumours and cysts of the liver. Pregnancy, obesity, ascites and large abdominal masses will cause diaphragm to rise.

HERNIATION

Herniation through the diaphragm may be congenital through foramen of Morgagni (retrosternal) or Bochdalek (Postero-lateral) and antero-lateral defects. These may present as emergencies in infancy or later. *Acquired herniation* is most commonly spontaneous through the oesophageal hiatus, and may be para-oesophageal, sliding, or mixed.

Treatment :

Hernia :

(1) **Nux Vom.** Pain in an old hernia and threatened strangulation.

- (2) **Calc. Carb.** Hernia of fatty children.
- (3) **Silicea.** Hernia in thin rickety children.
- (4) **Aesculus.** Inguinal hernia.
- (5) **Lycopodium.** Umbilical hernia.

DIAPHRAGMATIC SPASM

(Hiccough)

Definition :

Hiccough is an involuntary, inspiratory spasm of the respiratory organs, ending in a sudden closure of the glottis with the production of a characteristic sound. The spasm is popularly known as 'Hiccough' and is of the clonic (alternate contraction and relaxation), or tonic (persistently contractive) variety. It is only the latter form which has some medical importance.

Etiology :

Hiccough is caused by

- (1) irritation of oesophagus through pungent foods or smoke,
- (2) gastric disturbances e.g. gastritis, distension, and dilatation of stomach,
- (3) intestinal obstruction enteritis,
- (4) diseases of brain, e.g. cerebral tumours, hysteria, meningitis, epilepsy,
- (5) in complication with uraemia, typhus, Bright's disease, tuberculosis, this is always a dangerous symptom,
- (6) liver and sub-phrenic abscess, and
- (7) post-operative causes.

Treatment :

General : Pressure on the chest, holding the breath and pressure on one side of the neck will relieve.

Curative : Ordinary cases may be treated by

- (1) **Nux Vom,**
- (2) **Cyclamen,** or

(3) **Ignatia**, if provoked by smoking, eating or drinking. Persistent hiccough needs the following remedies :

(1) **Cicuta Virosa**. When there is belching and strong spasm.

(2) **Aethusa**. Spasmodic variety, particularly in case of children.

(3) **Natrum Mur**. Violent hiccough especially in malarial cases.

(4) **Moschus**. In hysterical cases :

(i) Ratanhia,

(ii) Ginseg and Hydrocyanic Acid,

(iii) Sulphuric Acid, and

(iv) Kali Bromium, in obstinate cases.

VI —DISORDERS OF THE MEDIASTINUM

The mediastinum is the inter pleural space which extends from the thoracic inlet above and to the diaphragm below and is divided into four parts :

(1) Superior mediastinum, which lies above the fourth vertebra and contains the aortic arch and its branches, innominate vein, part of the superior vena cava, the thymus, trachea, oesophagus, thoracic duct, the vagus, the recurrent laryngeal, cardiac and phrenic nerves. The other three parts lie below, *i.e.*,

(2) Anterior mediastinum containing connective tissue.

(3) The posterior mediastinum lies behind the pericardium, and

(4) The middle mediastinum, comprising of heart and the pericardium and the ascending aorta. It lies between the anterior and posterior parts. All parts contain some lymph-nodes.

MEDIASTINITIS

Definition & Etiology :

Occasionally mediastinum is infected and gives rise to acute and chronic mediastinitis.

Infection may gain access either from direct spread from outside from trauma, from adjacent structures (*e.g.* from bones or along the facial planes from the neck, from the pleura, pericardium or lung) or from structures contained within the mediastinum, such as, oesophagus or lymph nodes.

Clinical features :

Acute suppurative mediastinitis usually follows perforation of the oesophagus and may be spontaneous (following vomiting) with carcinoma or foreign body or after endoscopy or dilatation.

(1) There is generally a rapid onset of severe pain behind the sternum which radiates to the back, followed by toxæmia, restlessness and high fever with leucocytosis.

(2) Inflammatory oedema may press on the trachea with cough, stridor, or breathlessness, on the oesophagus with dysphagia, on nerves, *e.g.* the left recurrent laryngeal nerve, with hoarseness, on veins with obstruction to venous return.

(3) Mediastinal emphysema will also follow rupture of the oesophagus or trachea, and the air and infection most commonly gain access to one or other pleural cavities with effusion or empyema.

Diagnosis :

The diagnosis is usually clear from clinical findings. The chest radiography may show widening of the mediastinum shadow with displacement of trachea or oesophagus. There may be air and fluid in the mediastinum or pleura.

Chronic mediastinitis is even more rare. It may be tuberculous, having spread from an infected lymph node.

Idiopathic mediastinal Fibrosis is characterised by the deposition of dense collagen, most often in the superior mediastinum. The two conditions are usually of unknown cause.

The clinical picture is usually of slowly developing obstruction of either the superior vena cava or the pulmonary veins, but oesophageal obstruction may develop. The radiography is unhelpful in the diagnosis, which has to be confirmed by biopsy to exclude malignancy.

Remedies :

- (1) Aconite
- (2) Belladonna
- (3) Bryonia
- (4) Ferrum Phos.
- (5) Hepar Sulph.
- (6) Merc. Sol.
- (7) Sulphur.

MEDIASTINAL EMPHYSEMA

Air may gain access to the mediastinum by rupture of the oesophagus spontaneously, or as a result of trauma, foreign body or new growth, by rupture of the trachea and bronchi due to external or surgical trauma, by interstitial rupture of air space in the lung and rarely through the diaphragm after perforation of the bowel, following pneumoperitoneum or peri-renal insufflation (blowing) of air.

Mediastinal emphysema is often asymptomatic, but may cause severe central chest-pain like that of myocardial infarction. On examination, there may be sub-cutaneous emphysema in the neck and face, and characteristic crackling sounds over the mediastinum, usually heard over the heart with the patient sitting-up. The sound may be similar to that heard with a shallow left pneumothorax. Breathlessness, cyanosis, distension of the jugular veins may all develop, if the mediastinal air is under tension.

Physical Signs :

On chest radiography, a separate linear shadow may be seen along the line of the mediastinum and around the heart border, usually on the left side. Air may also be seen in the cervical region. A pneumothorax or a hydro-pneumothorax may be seen on the radiograph, too. The air is usually absorbed spontaneously.

Treatment :

The following remedies are suggested :

- (1) Ammon. Carb.

- (2) Arsenicum.
- (3) Calc. Phos.
- (4) Drosera.
- (5) Lob. Inflata.
- (6) Lycopodium.
- (7) Phosphorus.
- (8) Strychninum.

MEDIASTINAL TUMOURS

General Hints :

There is a wide variety of mediastinal tumours, both primary and secondary, lymphomata, (tumours of lymph nodes) and cysts. Many are of developmental origin. Many are benign, but all these lesions may compress, displace or interrupt function of the vital structures within the mediastinum.

The symptoms and signs created depend on :

- (i) the site of the tumour or cyst,
- (ii) their direction, and
- (iii) rate of growth.

The major indications are :

- (1) breathlessness, stridor, harsh brassy cough, and sometimes sputum which may be blood-stained,
- (2) collapse of the lung or invasion of the lung and of the pleura with effusion,
- (3) deep pain due to rapidly growing tumours, or pain from invasion of the bone,
- (4) obstruction and hoarseness due to recurrent laryngeal nerve palsy or diaphragmatic paralysis from phrenic nerve involvement,
- (5) dysphagia will result from pressure or invasion of the oesophagus, and
- (6) the tumour may deform the chest wall.

Diagnosis :

The majority of these tumours have to be distinguished from other lesions, such as, aortic aneurysms, pericardial effusion and intrathoracic thyroid. Usually tomography, barium meal, angiography, bronchoscopy or mediastinoscopy will be needed to arrive at correct diagnosis. Thoracotomy will be required to identify malignant tumours and lymphomata.

Tumours and cysts of the mediastinum are generally encountered with :

(a) carcinoma of the bronchus, which is 30 times more common, and

(b) that of oesophagus which is about seven times more common.

The most common tumours are *neurogenic* followed by cysts, teratomata, thymic tumours, and lymphomata. The others are extremely rare. We shall, therefore, describe these in limited details here.

Neurogenic tumours :

These arise from the sympathetic nerve trunk and spinal nerves and therefore lie in the posterior mediastinum. They comprise :

(1) *neurilemmoma* which compresses the spinal cord (dumb bell tumour) and is the commonest,

(2) *neurofibroma* which originates from an intercostal nerve and may become malignant,

(3) *benign ganglioneuroma* which arises from the sympathetic ganglia. It is more common in childhood than the other tumours,

(4) *neuroblastomata* are malignant tumours which arise from the sympathetic nerve and are commonly found in children.

These neurogenic tumours are usually symptomless, unless they compress the spinal cord and become very large. Neurofibromata will sometimes be associated with widespread cutaneous lesions and pigmentation. These tumours cast homogenous shadows on the

chest radiography. The shadows may sometimes contain calcium. The prognosis is good. With malignant tumours the prognosis is less satisfactory.

Mediastinal Cysts :

These are uncommon, and apart from hydatid cysts, they are congenital and arise from the pericardium, foregut or thymus.

Pleuro-pericardial cysts are simple congenital cysts. They are filled with clear colourless fluid (spring water cysts).

Most cysts which originate in embryonic foregut are either *bronchogenic* (in or around the trachea or major bronchi) or *gastro-enterogenous* (around the oesophagus). These cysts secrete gastric juice and many contain cartilage. They may be accompanied by congenital anomalies, such as, spina bifida etc.

Teratomata :

These cysts may be benign or malignant and contain some tissue from all the germinal layers. They usually lie in the anterior mediastinum. The benign variety is mainly composed of ectodermal tissue (ectoderm is the external primitive germ layer of the embryo) e.g. skin, hair, teeth, nervous tissue, bone, exocrine gland, etc. and is usually cystic. The malignant variety comprises all the three germinal layers, is solid and may be large.

Infection and malignant change produce symptoms. By infection there may be rupture of the pleura. Cough, dyspnoea, stridor and sternal pain are the most striking symptoms. Dense homogeneous shadows are seen on the radiograph.

Thyme cysts and tumours :

The thymus is relatively large at birth. It increases in size in the first two years of life, giving a wide mediastinal shadow in the anterior mediastinum. It rarely causes symptoms, and after 2 years of age, its growth diminishes much and it declines after puberty.

The thymus may enlarge in thyrotoxicosis and systemic lupus erythematosus.

Cysts of thymus are rare and often multiple. They are usually asymptomatic and only exceptionally cause sternal pain and cough.

Thymoma may be solid or cystic, well-demarcated or calcified. Most thymoma are malignant and invade adjacent lymph nodes. Thymomata present dyspnoea, stridor and pain, when *myasthenia gravis* is not associated.

Treatment :

General remedies are :

Cysts : (1) Iodium,

(2) Kali Br.

(3) Apis.

Tumours : (1) Ferrum Iodide,

(2) Hekla,

(3) Lupus Alba,

(4) Plumb. Iod.,

(5) Merc. Cor.,

(6) Calc. Carb.,

(7) Baryta Mur.

New growths : (1) Asterias Rub.,

(2) Plumb. Iod.,

(3) Arsenicum,

(4) Carcinotin (200),

(5) Carbo an.,

(6) Plumb. Iod.,

(7) Silicia,

(8) Thuja.

VII —INTRATHORACIC TUMOURS

(Tumours of the bronchi)

Definition :

Tumours arising in the bronchi may be ;

(a) simple, or

(b) malignant.

SIMPLE TUMOURS

The varieties of simple tumours are : adenoma, lipoma, myxoma papilloma. These lead to bronchial obstruction and the resultant collapse & bronchiectasis. *Adenoma* has been especially dealt with.

MALIGNANT TUMOURS

The varieties are :

- (1) the primary carcinoma,
- (2) sarcoma.

(1) PRIMARY CARCINOMA

The following types of carcinoma are met with :

- (a) **Adeno-Carcinoma**, which arises from the lining of the mucous glands of the bronchi.
- (b) **Squamous-cell Carcinoma** or **Epithelioma** which arises from the cells of the mucous membranes of bronchi.
- (c) **Oat-celled tumour**, which consists of undifferentiated rapidly dividing cells and is the most malignant type.

(2) SARCOMA

This may originate in the connective tissues of the bronchi.

ADENOMA OF BRONCHUS

Definition :

This is a simple tumour arising not only in the main bronchus, but also in the branch to the lower lobe.

Etiology :

Adenoma bronchus occurs equally in the two sexes and usually in adults below 40 years of age.

Pathology :

The tumour is at first small and is found both on the right and left sides. The bulbous end is generally directed towards the trachea. The surface is smooth and shiny, but may be nodular.

Clinical features :

(1) Often the earliest symptom is haemoptysis, which may be slight or profuse.

(2) In other cases, there is bronchial obstruction with resultant cough and wheezing, developing into pulmonary collapse and bronchiectasis.

(3) Dry pleurisy may result from infection, and may develop into pleural effusion or empyema.

Diagnosis :

It can only be established by a microscopic examination of a portion of the tumour, removed through a bronchoscope, for haemoptysis and pulmonary collapse may suggest bronchial carcinoma and unresolved pneumonia respectively.

Prognosis :

If the condition is diagnosed and treated before the growth extends outwards and before any bronchial obstruction and septic infection occurs, the outlook is favourable.

Treatment :

For bleeding tumours :

- (1) Phosphorus.
- (2) Hydrastis Mur.
- (3) Sanguinaria.

Otherwise give :

- (1) Thuja.
- (2) Calcarea Fluor.
- (3) and weekly doses of Carcinosin 200.
- (4) Fatty tumours generally need : *Calc. Carb.*
- (5) A fatty tumour about the neck needs Baryta Carb and Carcinosin 200.
- (6) For general increase of fat, *Calc Ars.* 30.
- (7) Encysted tumours : *Calc. Carb.*
- (8) **Hard tumours** : *Calc. Fluor*, *Conium*, *Baryta*, *Iod.*
- (9) Carbolic Acid is a great internal remedy for cancer.

NEW GROWTHS IN THE LUNGS (including Bronchogenic Carcinoma)

Definition :

There are new growths in the lungs in both simple and malignant forms. Malignant growths are more common.

Etiology :

Malignant tumours occur more in the male after 40 years of age. But *sarcoma* may develop in early years. Simple tumours may develop at any age, though they are chiefly found in adult life. The exciting cause is unknown. In some cases, there is a history of thoracic injury or disease. Simple tumours are found only in the bronchi or mucus glands.

Malignant tumours may be primary or secondary. The primary growths are *carcinoma* and *sarcoma* or *endothelioma*. Secondary carcinoma may have its primary focus in the breast, stomach, intestine, liver, pancreas or prostate, while a secondary sarcoma may result from a primary bony growth. Primary malignant growths are unilateral, but the secondary growths are multiple and diffuse. *Bronchogenic Carcinoma* is the commonest of malignant tumours. Its incidence is increasing particularly in western countries. The most important predisposing causes are heavy cigarette smoking and persistent exposure to carcinogenic agents, present in the atmosphere of industrial areas and certain mines containing radio-active substances.

Symptoms and Signs : (Chiefly of Bronchogenic Carcinoma) :

(1) The early symptoms are a general feeling of illness, and perhaps, cough and expectoration.

(2) Growths are noticeable on extension, and on exerting pressure on the larger bronchi or pleura.

(3) Pain, dyspnoea, loss of weight, cough and expectoration are more marked now.

(4) Microscopically, large fatty cells, or irregular epithelial cells may be seen.

(5) The chest wall may bulge locally or it may be retracted if the bronchus is obstructed.

(6) Vocal fremitus is often unaffected, but is increased, when growth is near the surface and diminished, if pleural effusion has taken place.

(7) The percussion note over the tumour may be extremely dull, due perhaps, to the collapse of the lung.

(8) The breath sounds vary with the size and growth of the tumours, and may be weak, or loud and stridulous.

(9) The presence of adventitious sounds depends upon complications, such as, bronchitis.

(10) Some fever may be present.

(11) The axillary glands may be enlarged.

Complications :

(1) Bronchitis is almost always there.

(2) Pulmonary collapse, fibrosis, bronchiectasis, emphysema, gangrene, haemoptysis, pleural effusion, abscess and empyema are sometimes seen. The effusion is frequently blood-stained. Secondary deposits may occur in other parts of the body, such as, brain, supra-renal glands, heart, bones and lymphatic glands.

Diagnosis :

Sputum should be examined for tubercle bacilli, and X-Ray examination of the chest be made. This will demonstrate, whether there is any localised pulmonary collapse.

Prognosis :

Apart from a few cases of early recognition and treatment, this is hopeless.

Treatment :

(1) **Silicea** : This remedy will be useful for *sarcoma* with a thick yellow and offensive discharge.

(2) **Condurango** : Useful in various forms of carcinoma.

(3) **Hydrastis** : This remedy is the best known treatment for cancer. The dyspeptic symptoms lead to its selection.

(4) **Radium** : Useful in cancers in early symptoms; such as aching pains, itching over the body, pains resembling chronic arthritis.

(5) **Carbolic Acid** : A valuable internal remedy for cancer.

(6) **Cedron** : A valuable remedy for lancinating pains of cancer.

CHAPTER IV

THE DIGESTIVE SYSTEM

SECTION-I

PHYSICAL EXAMINATION OF THE DIGESTIVE TRACT

SECTION-II

IMPORTANT COMMON SYMPTOMS OF THE DIGESTIVE TRACT

SECTION-III

- (i) DISEASES OF GASTRIC TRACT AND SALIVARY GLANDS (MOUTH, TONSILS, PHARYNX)**
- (ii) DISORDERS OF THE GASTRIC TRACT (DYSPEPSIA AND GASTRO-ENTERITIS)**
- (iii) DISORDERS OF THE INTESTINAL TRACT (DYSENTERY, DIARRHOEA, CHOLERA, COLITIS ETC.)**
- (iv) DISEASES OF LIVER, GALL BLADDER AND PANCREAS.**

THE DIGESTIVE (GASTRO-INTESTINAL) SYSTEM

SECTION-I

PHYSICAL EXAMINATION OF THE DIGESTIVE TRACT

(1) MOUTH

(i) Lips :

(1) Their paleness denotes poverty of blood ; temporary paleness is noticed in chills, spasms, fainting fits and fright.

(2) Their redness is a healthy condition ; but increased deeper and brighter redness is found in feverish conditions. A higher redness of the lower lip, without apparent cause, indicates **Sulphur**.

(3) Bluish lips are seen in all conditions, where a free circulation of blood is interfered with.

(ii) Gums :

On Inspection. (1) They are pale in anaemia, from abuse of mercury and in spasmodic conditions.

(2) They are blue in cyanosis and scurvy.

(3) Brown and blackish, coated with tough mucus in typhoid conditions.

(4) A bluish, grayish slate-coloured line on the gum is an indication of lead-poisoning.

(5) A purple line is found in old age.

(6) A pink line on the lower gums and paleness of remaining gums is often found in phthisical subjects.

(7) Swelling of gums of a congestive or red inflammatory nature indicates toothache ; of an oedematous and spongy nature, scurvy ; stomatitis, mercurial affections, or pyorrhoea. In such conditions, the gums bleed when being cleaned.

(8) Ulcerated gums originate from diseased states of teeth.

(iii) Teeth :

(1) Dentition starts from the 6th to 8th month. The temporary teeth or milk teeth, 20 in number, take about 2 to 2½ years to appear.

(2) The delay in appearance is often due to malnutrition, or congenital thyroid deficiency. The early appearance indicates congenital syphilis.

(3) Permanent teeth which are 32 in number start appearing from the 6th or 7th year and except for the wisdom tooth, the process is complete during the 11th or 12th year.

(4) During dentition, fever, loss of appetite, diarrhoea, respiratory catarrh and even convulsions, sleeplessness and loss of weight are generally present.

(5) In worm diseases, children grind their teeth in sleep. (The adults suffer from headache as a result of dental inflammation).

(6) Toothache is due to :

(a) Inflammation of tooth pulp,

(b) Exposure of dentine to cold,

(c) Abscesses, traumatic or septic infection, after tooth extraction,

(d) Inflammation of gums, and

(e) An extracted or a decayed tooth, which may be associated with pyorrhoea or diabetes mellitus.

(7) Pyorrhoea is a collection of pus in the gum margins with caicareous deposit. Sometimes, this develops into an abscess.

(8) The reduction of food to a soft pulp by efficient mastication is an important prerequisite to good digestion and for this it is essential that a patient has adequate number of teeth.

(iv) Tongue :

The tongue presents, on inspection, quite characteristic diagnostic hints. The most important of these are :

(a) Form and Size. (i) A large, flabby tongue indicates gastritis, thyroid disorders, glossitis, acromegaly, dyspepsia and new growths.

(ii) A thin, shrivelled tongue is seen in atrophy, paralysis of tongue and consumptive diseases.

(iii) A broad tongue is found in rachitis, scrofula, abdominal affections and intermittent fevers.

(b) Colour and Papillae. Too red all over with raised papillae (strawberry tongue) in scarlet fever ; red and dry in meningitis, gastritis or colitis ; red on edges and on the tip, or a red, dry streak in the middle, in typhoid fevers ; red, clean and glossy in gastric and high fevers, congestion in head and impending delirium ; red and cracked in ulceration of bowels.

(ii) Pale tongue in chills, spasms, haemorrhages, anaemia, dropsy and general exhaustion. If this is found in eruptive, gastric or bilious fevers, it denotes a fatal issue.

(iii) A lead-coloured tongue is in cholera, in lung and stomach pains, and cancer of tongue.

(iv) A bluish tongue denotes impeded circulation of blood and is found in asthma, whooping cough, gout, bronchitis, pneumonia, heart diseases, pleural effusion and cyanosis.

(v) A yellow tongue is found in jaundice, preferably on the under-surface.

(vi) Brown and dry tongue is seen in acute intestinal obstruction and uraemia, & black in Addison's disease.

(c) Secretions. (i) A healthy tongue is clean and moist.

(ii) A constantly moist tongue in a sleepy condition denotes great exhaustion.

(iii) A dry tongue is found in fevers, cholera or gastro-enteritis, diabetes mellitus, uraemia. Mouth breathing also causes a dry tongue.

(d) Coating and Furring. (i) Coating or furring on the upper surface of the tongue in the morning may be present in a normal person, or in heavy smokers, or after night-watching. The coating of the root of the tongue does not mean much ; in a slight degree everyone has it in the best of health.

(ii) A coating on the tip of the tongue is generally found in phthisical persons.

(iii) A patchy or mapped tongue is observed in lung disease, or indicates inflammation of stomach.

(iv) A thick, white coating is seen in affections of fauces and in gastric disorders.

(v) A yellow coating indicates biliousness ; a dark brown coating exists in malignant fevers and in haemorrhages from the mouth.

(vi) One-sided coating is indicated in one-sided complaints, *e g.* paralysis, liver, spleen or lung affections.

(vii) A peculiar, buff-leather appearance is seen in enteritis and hepatitis.

(viii) A black coating in dysentery and small-pox, indicates an unfavourable sign ; in jaundice, it indicates organic disease of the liver and the spleen. Coated in the centre with raw margins, the tongue indicates typhoid fever. It is furred in chronic gastritis.

(e) Ulcers and Fissures. On the dry tongue, sometimes, deep, bleeding and suppurating ulcers are found in typhoid, small-pox and dysentery. Ulcers on the tongue are associated with stomatitis, glossitis, epileptic fits, dyspepsia and syphilis. Chronic digestive disorders sometimes cause a number of small, round ulcers near the tip of the tongue.

(f) Paralysis, Tremor or Spasm. Tremor of the tongue which manifests itself by an imperfect stammering speech is often the result of apoplexy, softening, or other affections of the brain, Tremor is noticed in thyrotoxicosis, nervousness, alcoholism and typhoid fever.

(g) **The Salivary Glands.** The function of the three glands (the parotid, the sub-maxillary, and the sub lingual) is to pour forth saliva into the mouth in response to the sight, taste and smell of food and also by the act of chewing. The things to be noted about them are that (i) the decrease in saliva is observed in first four months of infancy, and in the last years of old age, and in different pathological conditions ; increase of saliva is accompanied by most sickening and penetrating smell from the mouth, swelling and inflammation of gums ; loosening and falling out of teeth shows stomatitis, ulceration of mucus membrane and mumps.

Saliva is essential for speech and it moistens the food and lubricates the process of swallowing. It enables taste to take place. It also contains an enzyme, ptyaline, which is concerned in the digestive process.

(h) **Buccal Cavity.** It consists of the mucus membrane, covering the inside cheeks and all the organs within the mouth (except teeth). Any change of colour or appearance of any eruption has to be noted, such as is seen in the sore mouth of the infants (thrush), Addison's disease, stomatitis and ulcerations of the mouth.

(a) The foul breath from the mouth may be due to unclean pyorrhoea, decayed teeth, and stomatitis.

(b) From the nose, may be due to polypus of the nose, abscess, septic tonsillitis, or any other malignant disease.

(c) From the alimentary canal, may be result of dyspepsia, constipation, intestinal obstruction, or liver disorders.

(d) From the lungs, due to bronchitis, tuberculosis, gangrene or abscess of the lung manifested by coughs.

NOTE : Foods containing asafoetida, excess of onion, garlic may give a smell to breath and should be restricted.

(2) OESOPHAGUS

(Phy. Exam. of)

This is also called "The Gullet" and extends from the pharynx to the stomach, a distance of about 9". **The symptoms of the**

disease of oesophagus are :

- (a) dysphagia.
- (b) pain, and
- (c) regurgitation (backward flow of the contents of the stomach) of undigested food.

The causes of these symptoms and the various physical signs are noted below :

Causes : (i) Dysphagia may be due to obstruction or ulceration. Complete or partial obstruction is caused by catarrhal inflammation in the mouth, pharynx and larynx, or a constriction caused by wounds, sores, ulcers, any growth, foreign body, a spasm, diseases of oesophagus or poisoning.

(ii) If the symptoms develop slowly and are associated with progressive muscular wasting, there is likelihood of a cancer having formed.

(iii) Obstruction in the upper part of oesophagus is from hysteria, paralysis; obstruction in the middle from ulcers or a cancer; and at the lower end (cardiac) from poisoning, gastric ulcer or cancer.

(iv) The presence of obstruction can be detected by auscultation and by sounding, while swallowing. The sounding is done by means of an ordinary stomach tube and auscultation by putting the stethoscope at the neck during the act of swallowing a big mouthful of water. If an obstruction is present, no sound is heard. Radiography and Oesophagoscopy should be conducted.

(3) ABDOMEN**(Phy. Exam. of)**

The examination consists of inspection, palpation, percussion and auscultation. The first two are more important than the third and fourth.

On Inspection :

We examine the abdomen in an uncovered condition both in the lying and the standing positions and look for the following points :

(i) **General appearance.** This is observed to see, if it is distended (longer) or retracted (smaller). The distention of abdomen depends upon the condition of the stomach, liver, spleen, uterus, ovaries, kidneys, glands, intestines, etc and also upon the presence of tumours, cysts, pregnancy, hernia, etc. General enlargement may arise from exudation of the abdominal walls, from accumulation of fat, from collection of gas or fluid in the peritonium, from large tumours, from pregnancy, and from enlarged mesenteric glands—fat, flatus fluid, faeces, fibroid, and faetus. *The sunken-in or retracted* position of abdomen may be observed in starving people, in general emaciation, in strictures of oesophagus, the heart, the pylorus, or the duodenum after severe and chronic diarrhoea, cholera, meningitis, etc. One should also observe the condition of the skin to see, if it has oedema, pigmentation, or reddish streaks.

(ii) **Respiratory motion.** The diaphragm moves up and down during normal breathing process. If this motion of the abdomen decreases or ceases, it is a sign of inflammation of the peritonium, effusion of fluid or gas in abdomen, presence of larger tumours, or injuries of the diaphragm. The motion increases in diseases which prevent a normal expansion of the chest, as in pneumonia, pleurisy, etc.

(b) **Pulsation.** This movement is observed generally in the pit of stomach, sometimes lower down in the umbilical region. It may be due to abnormal position of the heart caused by the dilated right ventricle, or the descending aorta. In all these cases, the causes of pulsation are :

- (1) relaxed and thin abdominal walls,
- (2) curvature of spine forward,
- (3) a thickened lobe of liver, and
- (4) the increased impulse of heart, as in hysteria and the insufficiency of aortic valves.

(iii) **Elasticity of the abdominal walls.** We find the abdomen relaxed, hanging like a loose sack, generally in old women, or in those who have given birth to many children, or after absorption of large quantities of fluids. The accumulation of fat, too, produces the same effect.

(iv) **Distention of veins** : It is noticed that veins are distended and enlarged, whenever there is an obstruction, *e.g.* in portal obstruction, in stricture, or by pressure of abdominal organs or tumours.

(v) **Changes of colour of skin.** We see a pale, yellowish, brownish, or even blackish straight line from the navel to the pubes in pregnant women.

By Palpation :

By palpation we become aware of the disease, nature of swollen parts in the abdomen, character of pain, which the patient experiences on pressure. The seat of affection may be either in the abdominal wall, or in one of the abdominal organs. If the skin can be grasped and raised in a relaxed state, the condition of the wall can be determined. If the seat of affection is intra-abdominal, fingers should be moved from side to side over a palpable mass deep into the abdomen to see, if there is any swelling. The feel of a solid swelling is as hard as a stone, and that of a fluid, soft, unless there is too much distention. If the pain is increased by slight pressure and ameliorated by a gradual deeper pressure, the affection is mostly of a nervous nature. If the pain increases as the pressure increases, it indicates an inflammatory condition. Pressure upon stomach frequently causes sickness and belching. Pressure upon colon causes a desire for stool, and pressure upon bladder, a desire to urinate.

By Percussion :

Percussion gives :

(i) a tympanitic sound, whenever there is gas or air in the abdomen, unless the wall is too greatly distended ;

(ii) and empty sounds, whenever there are solid bodies, or fluid effusions in the body.

By Auscultation :

Auscultation is rarely necessary except for the following conditions occasionally : in suspected obstruction or stricture, when the swallowing sound is heard by putting the stethoscope on the chest. Friction sound may be present over the liver or the spleen. Sounds may be audible and vigorous in mechanical obstruction. A hum sound may be heard near the navel in portal obstruction, as in cirrhosis of liver.

(4)—STOMACH**(Phy. Exam. of)****Surface Anatomy :**

To know where the stomach lies, the following hints will locate its position in the abdomen.

(i) **The cardiac Orifice :** This opening from oesophagus into the stomach lies about $3\frac{3}{4}$ " behind the seventh left rib, and is fairly fixed.

(ii) The pylorus, the lower opening of the stomach into the duodenum, lies midway between sword-shaped junctional bone and the navel, and is overlapped by the liver.

(iii) The base of the stomach (Fundus) is as high as the 5th rib, a little above the apex of the heart.

(iv) The greater curvature of the stomach may go up to the lowest rib level, and, if distended, may reach the navel.

Types of Stomach :

About 80% of people have a normal stomach. In others there are two types of stomach :

(i) One, that is of a vigorous type (generally in males) and empties rapidly, is called *Hypersthenic stomach*. In this condition, 'hunger pain' is felt two hours after food. Such persons suffer from hyperacidity and are liable to get duodenal ulcer.

(ii) and one that is common in weak and delicate persons, especially women, with a tendency to delayed emptying (Hyposthenic). Such persons suffer from decreased secretion of acid, or gastric juice, and secrete a large quantity of mucus.

Gastric Secretion :

The normal secretions are :

(i) hydrochloric acid from parietal cells in the stomach more towards the cardia. This acid kills bacteria.

(ii) Pepsin is secreted more from the pyloric area. Pepsin digests proteins.

(iii) Mucus, the alkaline viscid fluid, is secreted from the mucous glands.

(iv) Intrinsic factor, which is an unrecognised constituent of human gastric juice, in its mode of action, resembles a catalytic agent. This is secreted probably from the body and the fundus of the stomach.

These secretions increase from sight and smell of food, exerted through Vagus, the 10th cranial nerve, which is composed of both motor and sensory fibres, and is widely distributed in the neck, thorax and abdomen, sending important branches to the stomach, lungs and heart. The secretions are decreased by fear, sadness and disgust, by alcohol, and presence of fat and acid in the duodenum.

By Palpation & Percussion :

(i) Lightly tap the skin over the stomach to excite its movement in waves in order to know, if there is any pyloric obstruction, when the movement would be obstructed.

(ii) In downward displacement of the stomach, the upper abdomen looks empty, when the skin is lightly tapped.

(iii) Pain at pylorus is located by applying deep pressure with one finger.

(iv) Gastritis, gastric ulcer, or any tumour in stomach is looked for by gentle palpation.

(v) If a splashing sound like that of shaking a bottle, half-filled with water, is produced below the navel after 4 or 5 hours of taking a meal, it indicates dilatation of stomach with cessation of motion.

(vi) If any meal is left in the stomach after 6 hours have elapsed—the normal period being 2 to 4 hours, it indicates stagnation or putrefaction, and if it is there even after 9 to 12 hours, it points to the organic closure or constriction of pylorus.

(vii) An increase in hydrochloric acid and chlorides indicates acidity in the stomach and sometimes gastric and duodenal ulcers and appendicitis, while diminished hydrochloric acid means cancer of stomach, chronic gastritis, pernicious anaemia, chronic bowel infections, allergic conditions, thyroid disorders, tuberculosis and occasionally gastric disorders.

(5) INTESTINES

(Phy. Exam. of)

The length of the intestines, both small and large is more than 26 ft. The small intestines consist of.

(i) duodenum (10" long).

(ii) Jejunum (about 8 ft. long).

(iii) Ileum (about 12 ft. long). The colon, the large intestines (about 6 ft. long) extend from the caecum to the rectum. The various parts of the large intestines have the following names :—

(1) Caecum.

(2) Colon. which may be subdivided into :

(i) Ascending colon,

(ii) transverse colon,

(iii) descending colon,

(iv) pelvic or sigmoid colon,

(3) Rectum.

(4) Anal Canal.

Caecum (about 2½" long) is a blind pouchlike commencement of the colon in the right iliac flank. To its lower end is attached the appendix. The sigmoid or the pelvic portion of the colon is an S-shaped curve joining the rectum to the descending portion of the colon. The anal canal is a short passage about one inch long and opens out through the anus and is surrounded by sphincter muscles. The exact position of navel, *duodenum*, *jejunal muscle*, *caecum*, *ileo-caecal orifice*, *orifice of the appendix* can easily be located by the observer, when examining their conditions.

Function of the intestines :

The function of the intestines is mostly to complete the digestion, which begins in the stomach and, then, to evacuate its contents through the rectum. The partly-digested food, called "Chyme", meets the juices that flow from the pancreas in the duodenum, and after assimilating proteins, fat, and carbohydrates, collects in the ileum, where the digestion is completed, and the products of digestion along with vitamins and mineral salts are largely absorbed. After the transverse colon absorbs some portion, the residue collects in the remotest portion of the colon and is evacuated.

By Inspection :

Look for the signs of Gienard's disease, viz.

(i) the epigastric depression and the lower abdomen fullness caused by the downward displacement of kidneys, stomach, spleen etc.

(ii) the distention (tympanitis) or retraction of stomach.

(iii) Upward or backward movement of the intestine, as a result of some obstruction.

By Palpation :

The observer can detect the condition of faecal matter, hard or soft ; full or empty of gas or faeces, knots or balls and look for any localised inflammation and hernial orifices.

(6) RECTUM**(Phy. Exam. of)****By Inspection :**

A proper examination of the rectum will reveal the following ailments :

(i) By inspecting the anus, one would find :

(a) swelling or oedema, if any

(b) any prolapse of rectum,

(c) condylomata (a syphilitic growth),

(d) any examination or other condition, or external piles.

(ii) By putting the right finger in, one could spot :

(a) ulcers and new growths,

(b) internal piles, polypus, obstruction in upper portion and tenderness of appendix.

(iii) The other methods are based on the application of instruments and radiology. These will reveal colitis, cancer, dysentery, and obstruction or paralysis of the intestines.

By Stool Examination :

The points to be considered in the examination of stool are :—

a) Frequency of evacuation, quantity and consistency.

(b) Colour of stools, its odour and the presence of blood, pus or any other foreign matter.

(a) Frequency and Quantity :

(1) It is in rectal disturbances that the quantity of stools passed is small, and increased in various types of enteritis.

(2) The consistency is uniformly fluid in small intestinal disturbances. as in sprue ; roundish and ball-like, when lodged in dry colon, goose-like in rectal spasm ; tape-like in obstructed bowels and furrowed in rectal polypus.

(b) Colour and Odour, Etc. :

(1) Light or dark-brown colour indicates a good flow of bile and lighter colour is due to the presence of less bile in the stools and much fat. A *rice diarrhoea* indicates cholera or severe enterocolitis. The green stools point to infantile diarrhoea ; the greenish point to typhoid ; putrid white clay-coloured to a pancreatic disease, black stools to the presence of venous blood or presence of iron or bismuth salts.

(2) The blood in stools may be present on account of duodenal ulcer, gastric ulcer, typhoid, tuberculosis, or intestinal ulcer, dysentery, etc.

(3) Odour is offensive and cadaverous in amoebic dysentery, cancer and other malignant diseases, sour in infantile diarrhoea, foetid and acidic in sprue, a peculiar sperm like odour in cholera.

(4) The presence of undigested food in excess means indigestion.

(5) Presence of mucus in stools shows a catarrhal condition of intestines, or some type of infection.

(6) Casts or flakes are usually present in stools on account of colitis.

(7) A large quantity of pus in stools is due to rupture of an abscess in appendix, kidney, bladder or prostate ; a small quantity denotes bacillary dysentery, colitis, or some malignant ulceration of bowels.

(7) THE LIVER

(Phy. Exam. of)

By Inspection :

The observer can know, if there is any swelling in the liver by observing the lower portion of the right chest.

By Palpation :

On palpating the lower border, considerable liver can be felt and determined. But, if it is moderately large, the observer has to support the liver by the left hand to push it forward, before it can be felt by the fingers.

By Percussion :

Deep dullness indicates the size and the position of the liver in hepatic diseases, or cancerous growths. Percussion is diminished in emphysema, and increased in collapse, fibrosis, and cavitation of a lung. The upper boundary is made out by deep percussion on the ribs, and the lower boundary by light percussion on the abdomen.

Function Tests :

The function of the liver is to receive the products of digestion in the shape of protein, fat, and carbohydrates and alter them for the ready use of the tissues. It stores glycogen, fat and essential vitamins. It maintains normal albumin/globulin ratio. It destroys possibly all toxins, bacterial, and chemical. It manufactures bile and throws it out. It detoxicates alcoholic and other injurious drugs. There are various laboratory tests to determine and check these functions of liver, so as to restore their normality, in case any damage has taken place.

The hepatic efficiency of function tests includes the following :

(1) **The Pigmentary Test.** This test is for investigating the presence and quantity of bile in blood, urine and faeces. Bile pigments in blood are shown by the *Vanden Bergh test*. In jaundice, there is excess of bilirubin, the bile pigment in blood. Bile pigments in urine can be easily tested clinically. With deficiency of bile in the intestines, the stools become fatty and white.

(2) **The Galactose Tolerance test.** Normally, the excretion of galactose (milk sugar) in 5 hours is less than 3 gms. A figure over 4 gms indicate some damage to liver. This test consists in giving 40 gms of pure galactose by mouth, and then examining urine for the sugar content. Blood samples are examined for sugar every 30 mts. for 2 hours. The sum of 4 such blood tests normally ought to give 70 gms of sugar. But, if there is any increase in this index, it points to a hepatic damage. This test, however, is not considered a very reliable one.

(3) **Hippuric Acid Synthesis Test.** This test is carried out by giving sodium benzoate by mouth, or intravenously to form hippuric acid inside the liver in combination with glycine. The amount of hippuric acid, excreted in urine, is then observed. If it is low, it points to some hepatic disease. This test also is unreliable and less helpful in diagnosis.

(4) **Bromsulphthalein Test.** This test is of no value, when jaundice is present and depends upon the ability of the liver to remove the dye from the blood. The test consists in giving this dye intravenously for a collection of a sample of blood after 4 or 5 minutes. In normal cases, the dye should disappear from the sample of blood, whereas in [a liver disease, the dye is invariably retained.

(5) **Tests to detect the activity of liver in the manufacture of plasma proteins.** As already pointed out, the liver is the sole site for the formation of albumin and part of globulins and maintains the pattern of plasma proteins. In the normal liver, the albumin/globulin ratio is 4 to 2.5 gm. per 100 ml. But in hepatic diseases, this may be 2 to 5 gm, per 100 ml., so that the quantity of albumin becomes less and that of globulin greater. This inversion of ratio is a serious thing.

Flocculation Tests :

(a) **This Cholesterol test** was introduced by Hanger to determine the albumin/globulin ratio. In case of diseased liver, the test is usually positive and is very useful in differentiating hepatic jaundice from obstructive jaundice.

(b) Another flocculation test is the *Thymol turbidity test* and is performed by adding thymol to serum and recording the degree of turbidity (flocculation). The normal is 0 : 4. This is considered the most useful flocculation test.

(6) **The Serum Alkaline Phosphatases Test.** This enzyme is excreted in the intestines with bile by the liver. In case of obstructive jaundice, its level in blood is increased from 15 units to 30 and more. This test is of value and differentiates obstructive jaundice from hepatic jaundice.

Three Signs of Liver Diseases :

There are only three signs which point to the diseased condition of the liver :

- (i) Pain,
- (ii) Enlargement or diminution in size,
- (iii) Jaundice.

(i) **Pain.** This may be due to rapid or progressive stretching of the capsule, as by a new growth.

(ii) **The enlargement of liver.** Takes place in fevers like malaria, kala-azar, typhoid, plague and other infective fevers or congestive failure of heart. It contracts in emphysema, or by compression from below, or from fluid distension of the abdomen, but real diminution takes place in cirrhosis of liver and hepatic degeneration. Sometimes, the liver gets displaced downwards by pressure from above, by pleuritic effusion, pneumothorax, growths in chest by relaxation of ligaments, by constriction of chest through thoracic deformities, or curvature of spine.

(iii) **Jaundice.** Indicates a liver disease, associated with the passage and flow of bile. It manifests itself in colouring the skin, the mucus membranes and the eyes yellow, discharging colourless stools and darkened urine.

(8) GALL BLADDER

(Phy. Exam. of)

Functions :

Liver secretes bile, which enters into the gall bladder through the cystic duct. The gall bladder concentrates it, and makes it 5 to

10 times thicker. When food is taken, the gall bladder contracts and the bile flows into the duodenum to digest the fat content of the residual food (chyme). Another function of the gall bladder is to absorb cholesterol and salts from the secreted bile. In a state of infection, the bile is readily absorbed, and the cholesterol is left free to form gall-stones.

By Palpation :

It is only in the enlarged state that the gall-bladder becomes palpable, as it is very close to the lower margin of the right lobe of the liver, where it just touches the costal margin (a rib) in the midclavicular line.

The indications of a gall-bladder disease are :

(i) A sense of heaviness in the epigastrium in the right hypochondrium after a full meal, containing fatty substances like eggs, butter, cream, etc.

(ii) Nausea, vomiting, acidity, weak digestion and flatulence.

(iii) Biliary colic, frequently associated with jaundice.

Examination of Contents :

Examination of the contents is made by the test called, *Meltzer Lyon Test*: A graduated sterilized duodenal tube is first swallowed up to 23" mark on empty stomach, which has been washed clean with sterile water. The tube is then slowly pushed further into the duodenum up to 28.5" mark. The contents are then withdrawn every 15 minutes. The duodenum is then washed with distilled water. A 25% solution of Mag. Sulph. is, now introduced, and this causes the opening of the Common Bile duct orifice and allows the bile to flow from the gall bladder into the duodenum. This fluid is withdrawn and examined to see, if it contains any pus or cholesterol crystals and mucus. Their presence will indicate the presence of gall-stones.

X-ray Examination :

The X-Ray plate, if opaque and darker in places, will indicate the presence of gall-stones in the gall bladder. Mottling indicates stones, or papilloma of the gall-bladder, or gas in the intestine.

(9) PANCREAS

(Phy. Exam. of)

Physiology :

Pancreas is a deep-seated organ, and is hardly palpable in healthy conditions. It is a tongue-shaped glandular organ, and lies below and behind the stomach. Its head is encircled by the duodenum and its tail touches the spleen. It is about 7" long and weight about $3\frac{1}{2}$ oz.

Secretions :

It secretes externally pancreatic juice and internally insulin. It is this external pancreatic juice which digests all principal food stuff after their exit from the stomach as chyme. Pancreatic juice contains three enzymes (catalytic agents). These enzymes help in the digestion of fat which are hydrolysed into glycerine and fatty acids. Raw starch is converted into maltose. In addition, the pancreatic juice aids in the neutralization of the acid gastric juice through its bicarbonate content. Insulin is a pancreatic hormone which is made and secreted internally into the blood, and has a profound influence in oxidising carbohydrates into sugar. Acid chyme on entering duodenum liberates the hormone, secretin. Another hormone (pancreozinum) is liberated at the same time. Both these external secretions reach the pancreas by blood.

Function Tests :

The following tests for pancreas are in the vogue and may be noted :

(i) **Secretory deficiency test.** After the duodenal contents are drawn out, the hormones, *secretin* and *pancreozinum*, are injected intravenously. An hour after, the secreted pancreatic juice is collected and examined for the rate of secretion and the bicarbonate and enzyme contents.

(ii) **Test for the presence of food residues, fats and starch in stool.** The stool is examined and the presence of muscle or meat fibres in stools indicates a deficiency of pancreatic digestive enzymes which increase the rate of chemical action in the duodenum. Foetid stools of waxy appearance indicate the presence of excess of

undigested fat. Excess of starch is detected by staining a faecal emulsion which takes a blue stain in view of a good deal of undigested starch.

(iii) **Blood and Urinary tests.** *Amylase*, an enzyme, which converts starch into sugar is secreted by pancreas, and is partly absorbed in blood and is then secreted in urine. A high serum amylase (over 200 units per 100 ml, normal less than 50 units per 100 ml.) in urine indicated acute pancreatitis.

SECTION-II

IMPORTANT COMMON SYMPTOMS OF THE DIGESTIVE TRACT

It will be helpful to consider some of the symptoms of the digestive system and the underlying disorders of function.

GASTRO-INTESTINAL PAIN

Pain is the most common symptom of any patient with gastro-intestinal disease. *Adequate stimuli* which commonly cause pain in the abdomen are :

(1) Strong contractions of smooth muscles, as in intestinal, biliary, ureteric or uterine colic, particularly if inflammation is present.

(2) Inflammation of parietal peritoneum, as in perforation of a peptic ulcer or in appendicitis.

(3) Enlargement of the capsule of a 'viscus' e.g. the liver, as in cardiac failure, or the spleen as in splenic venous thrombosis.

Tissues which remain relatively insensitive to pain are :

(1) Gastric and intestinal mucosa. Thus intense gastritis or diarrhoea gives rise to no more than slight discomfort, provided there is no associated muscular contraction of the bowel.

(2) Parenchyma of liver, spleen, kidney etc. Thus large secondary growths in all these organs may be completely painless.

Quality of pain. The description of the quality of pain by the patients is not generally helpful, as they cannot more often say anything more than that it is *deep* or *superficial*. The more helpful factors are its time, site and reference. *Reference* of pain is a process which takes place in the sensorium to localise the site and origin of pain.

Pain in the abdomen is more often associated with *muscular rigidity*. This rigidity is in fact a reflex spasm occurring in the abdominal muscle. Rigidity in the abdomen usually results from the peritoneal inflammation and may be present, even if the original pain has disappeared.

Severe pain resulting from periodic spasm in an abdominal organ is known as "*colic*".

Intestinal colic is used for spasmodic pain in the bowels, *biliary colic* for the pain in the gall bladder, *renal colic* for that in the kidney and *appendicular colic* for that in the appendix.

Treatment :

(a) For Intestinal Colic :

(1) **Chamomilla.** Flatulent colic with hot cheeks, red face and perspiration ; Colic due to anger, worse from warmth. The patient is very cross and does not want to be spoken to ; abdomen distended like a drum, as if it would burst ; weak digestion.

(2) **Colocynth.** A specific remedy for gouty and rheumatic persons, when severe griping (spasmodic) pain, mostly around the navel, forces the patient to bend double, or press something hard into the abdomen ; colic caused by undigested food, wind or some emotion or cold : emission of flatus relieves ; the griping pain sometimes precedes diarrhoea. This is a remedy for nervous colic and not the inflammatory colic.

(3) **Cuprum Met.** This remedy suits inflammatory colic, when the abdomen is hard, and violent spasms of colic are present. The colic is worse by drinking cold water. Pains are so violent that the patient screams and is very uneasy.

(4) **Dioscorea Villosa.** Flatulent spasm of great intensity relieved by stretching the body backwards, aggravated by lying down ; it suits biliary, rheumatic and neuralgic twitching colics ; pains radiate to chest and back. This drug should be given in IX potency in doses of 20 to 40 drops in 2 oz. of water, a tea-spoonful every half an hour to two hours.

(5) **Nux Vom.** Colic from accumulation of flatus or from haemorrhoids, sensation of deep pain with abdomen drawn in ; colic

from dietetic errors, or alcoholic drinks ; the pains are pinching and griping, worse by motion. There is frequent urging for stool.

(6) **Aconite**. For colic from cold with burning, cutting and darting in the bowels, worse from the least pressure. The abdomen is swollen and the patient is restless.

(7) **Belladonna**. Has a griping, clutching and clawing pain. During the pain, the transverse colon protrudes across the abdomen.

(8) **Mag. Phos**. Flatulent colic relieved by friction, warmth and pressure and is accompanied by belching the gas, which gives no relief.

(8) **Opium**. For bad colic with squeezing pains and retracted abdomen, (give *Plumbum*, if Opium fails).

(b) **for Appendicular Colic** (Appendicitis).

(1) **Arsenicum Album**. It suits septic cases, when there are chills, hectic symptoms, diarrhoea, restlessness and sinking of strength. Arsenic relieves vomiting if any quickly. (Try *Mercurius cor*. if this fails).

(2) **Belladonna**. In early stages, when there is a severe pain in the ileo-caecal region, which is sensitive to the slightest touch, worse from jar, motion of bed, or turning. The inflammation is localised ; especially useful in catarrhal and recurring cases.

(3) **Ferrum Phos & Kali Mur**. Useful for inflammation in the ileo-caecal region.

(4) **Bryonia**. Throbbing and stitching pains, confined to a limited spot, constipation, ileo-caecal region sore to touch, any movement is painful, and so the patient is lying quietly and still. There may be fever.

(5) **Lachesis**. Sensitiveness to touch all over the abdomen, stitching pains from the seat of inflammation backwards and downwards to the thighs ; the patient lies on the back with knees drawn-up.

(6) **Other remedies are**. *Dioscorea* (when the patient is never free from pain) ; *Mercurius cor* ; *Mag. phos* ; *Rhus Tox.* : (Great swelling and great pain in ileo-caecal region and intense restlessness)

(c) for Renal colic : (stone colic)

(1) **Belladonna**. Spasmodic crampy straining along the ureter through which the calculus makes its way.

(2) **Lycopodium**. Colicky pain in the right side of the abdomen which extends into the bladder with frequent urging to urinate. The urine has red sediments at the bottom.

(3) **Ocimum can.** Agonising pain ; the patient twists about, screams and groans ; red urine with brick-dust sediment.

(4) **Dioscorea Villosa**. Writhing with crampy pains ; must move about.

(5) **Berberis Vul.** Violent sticky pains in bladder, extending from kidneys into urethra, with urging to urinate.

(6) **Pareira Brava**. If *Berberis* fails, this remedy should be given in warm water every half an hour.

(7) **Nux Vom.** Pain in the right kidney extending into genitals and right leg ; nausea, vomiting, constant urging to urinate, inability to lie on the right side, better lying on back, rising and walking about increases pain.

(8) **Cantharis**. Great burning and tenesmus of the bladder in general complaints. Haematuria may be present with urinary difficulties.

(9) **Equisetum** is similar to cantharis, but it has less tenesmus and haematuria (Also see Renal Calculi under chapter V)

(d) for Biliary colic :

(1) **Dioscorea V.** Pains radiate from gall-bladder, less by moving about, or stretching backwards.

(2) **Carduus Mar Q** when pain is felt in the left lobe of the liver.

(3) **Calc Carb and Berberis Vul.** The treatment should begin with *Calcarea Carb* (every 15 minutes) and be followed by *Berberis (IX)*, if there is no relief.

(4) **Belladonna** is the most important remedy during biliary colic (if it fails, give *Atropine Sulph.*)

(5) **China Off** will prevent the formation of stones in gall-bladder. Use 6X potency and give 10 doses to be taken twice daily for 5 days. Next continue the ten powders after a gap of one day, then after two days, three days, and so on, till there is a gap of one month.

(6) **Ether** will also stop biliary colic, if given every 10 minutes (make a solution with 20 drops and give one tablespoonful at a time).

HUNGER, APPETITE AND FOOD HABIT

Hunger is usually described as an unpleasant sensation for any desire of food, a part of which is felt in the epigastrium. Besides, the person may also experience weakness, irritability, occasionally headache or even nausea. The epigastric sensation of hunger is intermittent, and this sensation is thought to arise from active movements of the stomach and duodenum, so-called 'hunger contractions'. The contractions occur for a period and then die away, as the stomach passes away into a resting phase. In certain diseases of stomach, such as, carcinoma these movements, disappear, and so the patient may complain of lack of general desire for food (anorexia). It is clear, however, that the urge to eat is not conditioned by these sensations, as patients continue to eat after partial or complete removal of stomach (gastrectomy).

Appetite, on the other hand, is described by most people as a pleasant sensation, and is usually felt in the mouth or palate. It appears to depend more on the odours and memory of pleasant foods and is clearly distinct from hunger. It is possibly related to the ability to smell clearly (olfactory acuity). If the sense of smell is completely destroyed, as may occur in the fracture of the base of the skull, the patient loses interest in food though eating continues from habit. *Food habits* are not related to the physiological suitability of any particular diet and are rigid and difficult to alter. The persistent refusal of food from psychological reasons is termed *anorexia nervosa* and may sometimes be so severe that it may cause death.

Treatment :

Anorexia may be treated by —Abies N : Ars ; chel ; china Ars .; Gentiana ; Lyco ; Nux Vom ; Puls. ; Rhus Tox.

When appetite is good, but the child loses flesh, give *Iodum* or *Natrum mur.* When appetite is good but is soon satiated, give *China*, *Cyclamen*, *Lyco* or *Sepia*. For aversion to food, give *Ipecac*, *Kali Bich*, *Nux Vom.* or *Silicea*. Aversion to milk needs *Carbo Veg* or *Phos. acid.*

NAUSEA

Nausea is an unpleasant sensation, easily recognised, though it is difficult to describe it. It is felt in the epigastrium and may precede vomiting. It is not a continuous sensation, but may be recognised as coming in waves with salivation, pallor and sweating. Its pathological basis is probably a changing pattern of spontaneous movement in the upper alimentary tract, with loss of tone of the stomach. Fat causes increased tone in the duodenum and inhibits movements of the stomach, and this may explain why some people feel nauseated, when large amounts of fatty food are eaten. If nausea is slight and not due to serious abdominal disease, it may be abolished by measures which encourage peristaltic movements down the gut. Such measures include food and drugs which stimulate evacuation.

VOMITING AND WATERBRASH

The act of vomiting is a movement caused by the contraction of the abdominal wall against a fixed diaphragm, with the cardiac sphincter relaxed. Vomiting is often preceded by nausea and salivation. Reflex salivation is called *waterbrash* (Pyrosis) and the fluid either runs directly out of the mouth, or is swallowed and then regurgitated from the oesophagus. Vomiting is a reflex act, which may be elicited by a variety of stimuli and over a wide area. For this reason, vomiting is not a useful localising symptom.

Causes and features :

(1) In the abdomen the most common causes are diseases of the stomach or small intestines such as, peritonitis, appendicitis or cholecystitis. Diseases of large intestines cause vomiting less frequently.

(2) Outside the abdomen, there are numerous conditions which may be responsible for vomiting *e.g.* migraine, meningitis uraemia etc.

(3) When vomiting has an abdominal cause, it is usually preceded by nausea. When vomiting is due to the direct stimulation of the vomiting centre in the medulla, it may occur suddenly without any warning.

(5) Vomiting in the morning occurs in pregnancy (morning sickness), alcoholic gastritis, or may be psychogenic in origin.

(6) If the size of the vomitus is usually large, there must be dilatation of the stomach, most probably due to obstruction of the part of pyloroduodenal canal.

(7) Vomiting that gives relief is probably due to an obstructive cause.

(8) If there is repeated vomiting without any loss of weight, the vomiting is probably psychogenic in origin.

In assessing the significance of vomiting, as a symptom, it is helpful to find out, if the patient vomits readily and has frequently vomited in the past with but little cause. The significance in such a case is not great.

Treatment : (Nausea and Vomiting)

Nausea (1) after eating ; *Amm. C.*, *Nux Vom.*, *Puls.*

(2) nausea from fat : *Nitric Acid.*

(3) from smoking : *Ipecac.*

(4) with desire to stool : *Dulc.*

(5) from ice, cold : *Arsenicum.*

(6) from nervousness or excitement : *Menthol.*

(7) from pregnancy : *Lactic acid*, *Mag. m.*

(8) from riding, boating or motion : *Cocculus*, *Nux mosch*,
Petroleum.

(9) with drowsiness : *Apocynum.*

(10) with faintness : *Bryonia*, *Cocculus.*

- (11) with headache : *Aloes*.
- (12) with salivation : *Ipecac*.
- (13) with vertigo : *Cocculus*, *Theridion*.

Vomiting caused by (1) impacted bowels : *Opium*.

(2) of cerebral origin : *Bell*, *Glonoine*, *Apomorphine*.

(3) eating and drinking : *Bry.*, *Phos.*, *Puls*, *Ver alb*.

(4) Gastric irritation : *Arsenicum*.

(5) Milk : *Aethusa*, *Cal. carb*.

(6) Motion : *Cocculus*, *Tabacum*.

(7) Pregnancy : *Cerium*, *Cocculus*, *Ipecac*, *Kreosote*, *Lac. can.*,
Nux Vom, *Tabacum*.

(8) Sea-sickness : *Petroleum*, *Kreos.*, *Nux Vom*.

HAEMATEMESIS AND MELAENA

(Gastro-duodenal Haemorrhage)

Definition :

When haemorrhage shows itself by the vomiting of blood, the condition is called *haematemesis*. But when it shows itself by the passage of altered blood in the stools, the condition is known as *melaena*. If the blood remains in the stomach for any length of time, it appears brown and granular in the vomit, so-called *Coffee ground*. The blood passed through rectum makes the stools black and sticky. But if the bleeding is rapid, there is little time for this change to take place.

Prognosis :

Since rapid bleeding is more likely to produce vomiting, the prognosis is worse with haematemesis than with melaena. The rate of bleeding depends on whether the bleeding will stop spontaneously, and this in turn depends on the type of the vessel involved. If the bleeding is coming from a sclerotic vessel which cannot retract, the outlook for spontaneous cessation is poor. If bleeding is capillary, and the vessel can contract, natural cessation of haemorrhage will follow. The prognosis is also related to the age of the patient.

Causes :

The common causes for gastro-duodenal haemorrhage are :

- (1) acute gastric ulcer.
- (2) chronic gastric ulcer.
- (3) chronic duodenal ulcer.
- (4) carcinoma of the stomach,
- (5) portal hypertension.
- (6) burns and surgical trauma.

Clinical features :

The patient complains of a feeling of weakness, often in the legs, nausea, faintness, sweating, and this is followed by the actual vomiting or passage of blood. Frank blood can traverse the gut and appear from the rectum within minutes of the onset of symptoms. The patient is pale, faint and anxious. The pulse rate is always raised and the blood pressure may show a fall.

Treatment : General :

(1) Rest in bed with feet slightly elevated.

(2) No food by mouth.

(3) Give small bits of ice and place ice-bag over the epigastrium or give hot water to drink and rub mustard oil over the epigastrium.

(1) **Aconite.** Acute haemorrhage in congestion and inflammation of the mucous membrane of the stomach, when there is anxiety and fever and profuse bright flow.

(2) **Hamamelis.** Fullness and pain in abdomen, passive blood vomited, and gurgling in abdomen, restlessness and soreness bruised feeling, dark blood.

(3) **Ipecac.** Blood is bright-red, and is accompanied with nausea and vomiting. The surface of the body is cold and covered with cold sweat.

(4) **Secale.** Passive, painless, dark offensive blood with formation and tingling in limbs ; the body is cold and the patient

desires to be uncovered ; the oozing is slow ; the blood is dark, thin and persistent, worse from motion.

(5) **Erigeron** is recommended for all forms of haemorrhages.

(6) **Arnica**. In traumatic haematemesis.

(7) **Other remedies**. Arsenicum, Belladonna, Carbo Veg., China, Nux Vom., Phosphorus.

CONSTIPATION

Definition :

Constipation may be defined as an infrequent evacuation of the faeces. What constitutes infrequency differs in different persons. Some have bowel movement after each meal ; while others only open their bowels every two or three days. Each of these rhythms is compatible with normal health.

Types of Constipation :

Acute constipation is associated with intestinal obstruction whether mechanical or paralytic in origin, of which it forms one of the cardinal symptoms.

The chronic form is by far the most common and is the type usually denoted by the term "Constipation". Chronic constipation is generally considered to be of two main types :

(1) Colonic Constipation.

(2) Dyschezia.

COLONIC CONSTIPATION

Causes :

(1) Colonic constipation which denotes delay through the colon as a whole is due to propulsive movement, although segmental movements may actually be increased.

(2) It may also be due to mechanical interference with the passage of faeces. Deficient movement may result from inadequate stimulation.

(a) of the colon from insufficient faecal bulk due to diminished food,

(b) or as a sequel to previous purgation which leaves the bowel empty.

(3) Severe dehydration from any cause may be followed by constipation.

(4) A spastic colon which abstracts an undue amount of water from the faecal matter may also be a cause.

(5) Defective movement also occurs from hypothyroidism which is often associated with constipation.

(6) Chronic constipation can also occur from a stricture of the bowel which is usually carcinoma, but may be due to diverticulitis.

(7) Constipation is also a symptom of depressive state.

(8) It is also a feature of pregnancy.

DYSCHEZIA

Definition :

The most common cause of simple non-organic constipation is a habitual failure to empty the rectum. This type of constipation has been named, 'dyschezia'. Various factors have been suggested to account for this condition.

Etiology :

(1) Improper training in childhood, insufficiency of lavatory accommodation and a persistent neglect to answer the call to defaecate.

(2) Lack of roughage or fibre content in the diet.

(3) Weakness of the abdominal muscles and muscles of the pelvic floor. This may be the factor in the constipation of the aged. (4) Posture at defaecation. Some races defaecate in the 'squatting' position with the thighs fixed on the abdomen and this seems to hold certain anatomical advantages, which are lost, if the usual sitting position of the western civilization is adopted.

Symptomatology :

Apart from a little discomfort due to retained faeces, which seems to be mainly mechanical, it is doubtful if constipation produces any symptoms.

Treatment :

(1) **Alumina**. Constipation due to dryness of the intestinal tract. The indications are :

- (i) even a soft stool is expelled with difficulty ;
- (ii) no desire for stool ;
- (iii) stool may be hard, knotty like sheep-dung or may be soft ;
- (iv) rectum dry, inflamed and bleeding ;
- (v) dry mouth and irritated looking tongue ;
- (vi) much straining, and stool small and in pieces.

Note : Bryonia and Alumina are similar except that in the latter, there is complete rectal inactivity.

(2) **Bryonia**. Dryness and no urging, intestine atony and, therefore, the stool, which is large, hard and very dry is passed with difficulty, as in *Ver Alb.*, and *Opium*, where muscular action and secretion both are diminished, acts better in rheumatic cases and in summer. There is mental irritability and ill-humour (In obstinate cases, alternate *Nux* with *Bryonia*).

(3) **Graphites** is one of the best remedies in cases of constipation due to non-attendance of nature's call in time. The indications are : no urging for days, and when the stool does pass, it is in round balls, knotted together with shreds of mucus, accompanied with great pain owing to fissures. Fissures burn, smart and itch, *Chief remedies of fissures being.*

- (i) Silicea,
- (ii) Nitric Acid,
- (iii) Paeonia, and
- (iv) Ratanhia. Anus extremely sore and aching after stool ; and temperament and obesity are generally deciding factors. The remedy suits women more than men.

(4) **Lycopodium**. Constipation due to constriction of the rectum which is associated with piles ; the rectum contracts, and protrudes with the stool. Other points of selection are : stools hard and dry, or the first part hard and the last soft, suits constipation

of children and pregnant women, great deal of rumbling in the abdomen following stool; mentally depressed, melancholy and oppressed with fear.

(5) **Natrum Mur.** Hard and crumbly stools. As the rectum is dry, it is hard to expel stool without bleeding, smarting and soreness, ineffective urging to stool with stitches in rectum, suits constipation of young men who are subject to acne. It may be used in all tedious & obstinate cases, where other remedies have failed.

Note. Dry crumbly stools, are also noticed in *Mag Mur*.

(6) **Nux Vomica.** Very useful for those who are constipated due to the use of purgatives and laxatives. It should, however, be prescribed in tincture at first to give relief, and then in higher potency to cure. *Hydrastis* is also applicable in such cases. But special indications should be noted. In the case of *Nux*, it is *sinking and gone-feeling at pit of stomach*, and the stools are hard and lumpy with mucus.

(7) **Platinum.** Special point to note is that stools adhere to rectum like glue. There is great dryness in the rectum and hence there is unsuccessful urging to stool and a feeling of weakness in abdomen and a load in the rectum. It is more suitable, if the trouble is brought on by a change in the manner of living like that of travellers and emigrants. There are sharp stitches in the rectum. This remedy is also used for constipation due to lead poisoning.

(8) **Plumbum.** The symptoms are:—Loss of muscular activity and diminished secretions of the intestinal tract. There is urging to stool, accompanied with violent colic, and spasmodic pains. The abdominal walls are retracted and drawn in. The stool passes with difficulty and consists of little round balls, which are black, dry and hard. The anus feels, as if drawn upwards.

(9) **Silicea.** Constipation due to inefficient expulsive power of the rectum, and the spasmodic condition of the *sphincter* which suddenly contracts, and the partially expelled stool recedes. This occurs in spinal disorders or with women during menses.

(10) **Sulphur.** Ineffectual urging to stool with burning and heat in the rectum, and there is a general uneasy feeling all through

the intestinal tract, due to abdominal fullness or passive portal congestion ; tendency to piles ; stools are hard, dark, dry and expelled with great straining and pain at the start, much twitching and burning of the anus. The evacuations are often unsatisfactory.

(11) **Veratrum Album.** The indication, calling for its use in constipation, is complete atony (weakness) of the bowels. The faeces accumulate in large masses in the rectum. The patient strains, and does not succeed and often sweats. The stools are large, hard and black. There may be faintness after stool. *Ver Alb.* 3X is recommended.

Other Remedies are :

- (1) Anacardium.
- (2) Amm. Mur.
- (3) Alumen.
- (4) Causticum.
- (5) Ignatia.
- (6) Nitric Acid.
- (7) Opium.
- (8) Phosphorus.

FLATULENCE
(including eructations)

The term is used to describe the passage of an excessive quantity of gas either from the stomach or the borborygmi (rumbling noises caused by the movement of flatus in the colon) which accompany the movement of gas in the colon. This gas may give rise to discomfortable symptoms of pain and distension.

The physiological problem of gas in the alimentary tract is basically simple. The ways in which the gas can enter or leave the gut are :

- (1) (a) swallowing of air,
- (b) expulsion of gas from the stomach or the colon.

Everybody swallows some air with his meals. This air is easily expelled up the oesophagus, particularly if there is fluid inside the stomach to prevent its passage through the pylorus. If the stomach is empty of fluid, when it contracts, as during hunger contractions, the air tends to pass through the pylorus rather than the oesophagus and the sounds of its passage into the intestines are called *borborygmi*. In an upright position gas is usually eructed, but in a lying position it cannot be completely eructated and so must pass into the intestines.

(2) It can also enter or leave by the *diffusion process*. According to the laws of diffusion, the gas passes from a region of higher pressure to one of lower pressure. This means that any mixture of gases in the bowel will tend to reach equilibrium with the gases in the blood.

(3) The third factor is the *formation and absorption of gas*. Carbon dioxide is formed to the amount of 3 to 4 litres a day in the small intestines from the interaction of acid gastric juice and alkaline pancreatic secretion. Gas can also form by fermentation of carbohydrates and by putrefactions of proteins. These reactions do not take place in the stomach except in pyloro-duodenal obstruction, when foul inflammable gas (H_2S) may be formed and eructated. Usually both these reactions take place particularly in the colon and the gas is either expelled from the bowel or is reabsorbed, and passing by the portal blood streams, may be detoxicated, either in the liver before being excreted through the lungs. The greater part of the gas formed in the gut is removed in this way. A few gases, such as hydrogen sulphide, may be removed by chemical combination in the intestine. *Carbo Veg.* (charcoal) is used to absorb unwanted gases. Under the moist conditions in the intestine, it may not be of any value.

Gastric flatulence :

This flatulence is relieved by *eructations*. Sometimes the gas in the stomach is not eructated. Generally the gas in the stomach should pass without any difficulty, but if the gas is not eructated, the symptom is either not due to gas or the sensation is derived from gas elsewhere in the alimentary tract.

Intestinal flatulence :

The small intestine is normally empty of all gas. It is only visible either when the gas is in excessive amount or when the gut is paralysed, and the gas is able to separate itself from the fluid content. In intestinal obstruction, distension is one of the main clinical features with gas production. When the gut is able to contract, distressing symptoms are produced.

Colonic flatulence :

The passage of excessive quantities of gas is a complaint. If the gas is odourless, it may be either nitrogen that is derived from increased amounts of air that has been swallowed or carbon dioxide that has been produced by carbohydrate fermentation. If the gas is foul smelling, it must mean putrefaction of proteins and this putrefaction may be due to intestinal hurry or to defective pancreatic secretion, so that the large quantities of protein remain undigested and pass to the colon. The gas must have also been produced too fast for absorption into the blood stream and consequent detoxication (removal of poisonous property of gas) in the liver. Absorption of gas depends on an adequate mucosal blood flow.

Treatment :

(1) **Carbo. Veg.** Much belching, sour and 'rancid' bloatedness of stomach and bowels, as if it would burst ; oppression of chest, palpitation ; consequences of high-living.

(2) **China Off.** Distension of abdomen, caused by flatulent food or drinking ; oppression of stomach ; eructations especially after eating ; fat food followed by drinking water ; great fermentation in bowels after taking sour beer or fruit.

(3) **Lachesis.** Eructations of air affording relief : distended stomach ; arrested flatulence.

(4) **Lycopodium.** Constant rumbling and gurgling of wind in the bowels, especially in the left hypochondrium ; incarcerated flatulence, which bears downwards upon rectum and bladder, causing a number of bad feelings.

(5) **Nux. Vom.** (i) Pressure of wind upwards, which obstructs breathing.

(ii) Oppression of chest and weight, as of stones, in stomach.

(iii) Constipation with constant ineffectual urging.

(iv) suitable for bad effects of alcohol, coffee and sedentary life.

(6) **Pulsatilla.** Bad effects of eating fatty foods, pastry, warm loaves, fruits, etc. The wind rolls in the bowels.

(7) **Phosphorus.** If oppression of chest is caused by wind with shooting pains without swelling, accompanied by restlessness, and anxiety, give this remedy.

HEARTBURN, WATERBRASH

Heartburn is a feeling of burning behind the lower end of sternum and is often accompanied by regurgitation of sour or acrid fluid (waterbrash) into the pharynx. The feeling strongly suggests the burning effect of acid. The symptoms have been produced by stretching the lower end of oesophagus or by producing oesophageal spasm. Hence it seems possible that heartburn is a muscular sensation. It is common in pregnancy. Heartburn may be experienced following meals, or following change of posture, such as, lying down after heavy lifting. The heartburn following meals is often associated with a duodenal ulcer, while that associated with a rise of intra-abdominal pressure is due to the incompetence of the oesophago-gastric sphincter, and is found most often with a hiatus hernia. Heartburn is frequently associated with dyspepsia and other affections of the stomach.

Treatment :

(1) **Nux-Vomica** often helps.

(2) **China.** If the symptom comes after eating.

(3) **Carbo. Veg.** If the above mentioned remedies fail or do not help.

(4) **Pulsatilla, Chamomilla** and **Capsicum** are other remedies to be tried after *Carbo Veg.*

- (5) **Staphysagria.** When caused by smoking.
- (6) **Belladonna.** If heartburn is attended with thirst.

Note. A slice of *lemon*, *sugared* and kept in the mouth is beneficial particularly during pregnancy. Sometimes drinking of *sugar water* every morning will remove it, although it may make it worse in the beginning.

Treatment of Eructations :

- (1) **Antim crud.** If there are risings with a bad mouldy taste and smell, resembling the smell of food eaten.
- (2) **Bryonia.** If there are risings with bitter taste.
- (3) **Nux Vom.** When risings are putrid.
- (4) **Pulsatilla.** For greasy risings.
- (5) **Arsenicum.** For acrid and bitter risings.

SECTION III

DISEASES OF GASTRO-INTESTINAL TRACT

(i) GASTRIC TRACT.

A—DISEASES OF THE MOUTH, GUMS TEETH AND TONGUE

This involves diseases of the tongue, gums, and the mouth. We shall consider them separately, although in many cases all the three are involved together. As the main etiological factors are the same for the most part, let us first consider the general causes and then the details separately.

GENERAL CAUSES

Traumatic cases. Badly fitting teeth causing ulcers, deposits of calcium in the gingival groove (gums), excessive brushing of the teeth, the habit of cheek biting, or the sharp-edges of broken teeth may all cause traumatic lesions, with severe inflammation of gums, cheek or tongue.

Chemical causes. Chewing of tobacco, betel-nut and repeated ingestion of strong alcohol may cause irritation of mouth, as also drugs like aspirin, peppermint. Certain occupations are also liable to buccal disorders, *e.g.* work involving strong acids or alkalies and exposures to metallic mercury as in manufacturing of barometers, or electric lamps and certain pharmaceutical processes.

Infection. Bacterial, viral or fungal infections of the mouth may occur particularly as a sequel of antibiotic treatment or in association with the use of drugs (hormones) produced by adrenal cortex.

Allergic or hidden causes. Oedema may cause intense swelling of the tongue, lips, buccal mucosa or glottis, allergic reactions to drugs, such as, antibiotics, iodides, sulphides may be a cause of stomatitis or mouth washes with certain drugs may cause erythema. Certain diseases of infective or allergic origin may be the cause, but the etiology in these cases is uncertain. *e.g.* lichen, planus, pemphigus, erythema multiforme.

Deficiency states. Iron deficiency leads to degenerative changes in the mouth ; lack of vitamin C (scurvy), folic acid and vitamin B₁₂ deficiency are other causes. These occur in conditions of malabsorption and malnutrition.

PYORRHOEA ALVEOLARIS (Chronic Periodontitis)

Definition :

Pyorrhoea is an inflammatory infective condition of the gums and the membranes covering the teeth, in which there is a flow of pus from teeth sockets or a collection of pus between the teeth and the gum margins.

Etiology and Pathology :

Stagnation of food mixed with the bacteria streptococcus viridans between the teeth leads to the inflammation of the edge of the gums (marginal gingivitis). The attachment of the mucoperiosteum to the neck of the tooth is destroyed, and a pocket develops between the tooth and the gum. The margin of the alveolar (belonging to the alveoli, the bony socket of the tooth) process is then slowly eroded as a result of *Osteitis* (inflammation of bone), stagnation of infective material in the pocket leads to gradual extension of the disease and aggravation of the gingivitis. Pus is produced, the condition at this stage being commonly known as pyorrhoea Alveolaris.

Symptoms :

(1) In marginal gingivitis the edge of the gum of one or more teeth is red and swollen and bleeds with ease when brushed.

(2) When pyorrhoea alveolaris has developed, the pockets of pus are seen round the teeth and pus is generally seen eroding from the edge of the gum.

(3) In chronic cases teeth are often loose.

(4) Reflex salivation occurs, and an excessive quantity of mucus is secreted by the small mucus glands of the mouth.

(5) The pus and accumulation of decomposing food produces an unpleasant taste in the mouth, mostly marked in the morning on waking up.

(6) There is no pain, but there may be a slight discomfort.

Signs :

(1) The inflammation of the upper jaw may extend to the nasal bone and the sinus

(2) Stomatitis, pharyngitis, tonsillitis may accompany.

(3) In early acute cases, a red line is seen along the free margin of the gums.

Treatment :

(1) **Mercurius Sol. or Cor.** Pain due to the inflamed gum, or the membrane of the socket ; worse at night and in damp weather, teeth feel elongated and sore, soreness becoming worse from warmth and affecting the whole jaw, painful ulceration at the root of the teeth ; gums swollen, ulcerated and retracted, with offensive odour from the mouth.

(2) **Silicea.** Abscesses in roots of the teeth, or dental fistulae; pains are worse from eating warm food, or when cold air gets into the mouth ; worse at night ; teeth feel loose.

(3) **Kali Carb.** When all the teeth are loose, and there is a bad smell from the mouth, this remedy would be suitable.

(4) **Cistus.** When scurvy gums easily bleed and give a putrid smell, this is the remedy.

(5) **Gunpowder.** May be used, when there is free suppuration and flow of pus.

(6) **Plantago Major.** Teeth feel elongated, sore and sensitive to touch ; cheeks swollen ; pains are periodic, easily excited and even affect the sound teeth, worse lying on affected side ; sometimes stabbing and boring pains become severe.

(7) **Staphysagria.** The gums are unhealthy and retracted. The teeth have a tendency to decay and turn black ; gnawing sensation in the roots of the decayed teeth.

(8) **Kreosotum.** Aching pains in diseased teeth ; premature decay of milk teeth ; they become yellow, dark and then decay.

(9) **Terebinthina** is complementary to Kreosote, especially if the mouth be sore.

TOOTHACHE (ODONTALGIA)

Definition.

Pain originating in the teeth owing to inflammation or decay of gums is known as Odontalgia or toothache.

Causes :

The causes are :

- (1) Inflammation of tooth-pulp.
- (2) Exposure of sensitive dentine, *i.e.* the ivory of a tooth, to cold.
- (3) Its involvement in an abscess, tumour, or exostosis, injury, septic infection after extraction of a tooth, or in syphilitic or rheumatic trouble.
- (4) Occasionally delayed eruption of a tooth or inflammation of the gum or the antrum (cavity).

Signs :

- (i) Congenital-syphilis, when the upper central incisors are peg-shaped at the interior border,
- (ii) Erosion when the superficial substance is eaten off in acidic dyspepsia,

(iii) Decay, carious teeth are generally associated with rickets, enlarged tonsils, adenoids and diabetes mellitus,

(iv) pyorrhoea, viz., collection of pus in the gum margins and the entire area turns into an abscess.

Treatment : General :

(1) Clean the teeth with a soft brush and pure water in the morning and after each meal, or with sugar of milk or with sour milk.

(2) Do not use opium to abate pain.

(3) Abstain from use of coffee.

Curative :

(1) **Arnica**. Useful after extraction of a tooth. From a solution of five drops of tincture in half a tumbler of tepid water, a mouthful should be locally used at a time. (Use *Hyoscyamus*, if *Arnica* fails). In severe pains use *Aconite* first and then *Arnica*.

(2) **Coffea** will remove the severest pains due to cold. The pain is often relieved by cold iced water. It is the best remedy for stinging, jerking pains (give *Aconite*, if this fails and *Chamomilla* or *Belladonna*, if even *Aconite* fails).

(3) **Chamomilla**. For persons who drink much coffee ; for pains in decayed teeth after taking cold during perspiration, or if the decayed tooth is too long and loose (if it appears loose, without being actually loose, use *Bryonia*).

(4) **Nux Mosch** will suit women during pregnancy.

(5) **Nux Vom**. For toothache after taking cold, when a healthy tooth is painful, and feels loose.

(6) **Pulsatilla**. When pain is only on one side, accompanied by earache or headache, aggravated by cold water, heat of the bed, or warm room, or by taking anything warm in the mouth, relieved by cool air, and ceasing entirely in the open air, better when walking about and by pressure, and is accompanied with chilliness and pale face. Pain comes rarely in the morning.

(7) **Hyoscyamus**. For sensitive, nervous, and excitable persons, and violent tearing pains, caused by cold air and which generally come in the morning.

(8) **Belladonna.** For pains which cause restlessness, the patient running about with a *disposition* to cry ; when pain radiates from one tooth in all directions, worse during the night or after going to bed, in the open air, after meals, and when touched, or biting, when hot liquids come in contact ; and the throat is dry with great thirst.

(9) **Mercurius.** Toothache in several decayed teeth at one time ; the pain affects the whole side of the face, or extends to the ear and the head : worse after eating or drinking anything cold or warm ; in damp air ; better in a warm place, at night and the pain is followed by perspiration ; best remedy for toothache with painful swelling of the cheeks.

(10) **Carbo. Veg.** If *Mercurius* or *Arsenicum* give relief, but do not cure, give this remedy.

(11) **Arsenicum.** When the teeth seem loose and elongated with jerking and throbbing pains, worse when touched, when lying on the affected side, and when at rest, and also from cold, better by heat of the stove, by hot applications, by sitting up in bed ; it is suitable when pains are very weakening, or when the patient feels feverish, and when the finger tips are cold.

(12) **Sulphur** is good for jumping pains, extending to the upper and lower jaw or to the ear ; for swelling of gums with throbbing pains, bleeding of gums, worse from draught, or rinsing the mouth with cold water.

(13) **Staphysagria.** Suitable when the teeth become black decayed and scale off, or when gums are pale, white, ulcerated and swollen.

STOMATITIS

(Inflammation of the Mouth)

APHTHOUS STOMATITIS

(Other Names :

- (1) Vesicular stomatitis
- (2) Canker sores
- (3) Dyspeptic ulcers of the mouth)

Definition :

This is a condition of the mouth, characterised by the development of one or more vesicles on the inner surface of the cheek, and

also on the tongue, each of which ruptures and leaves a yellowish-white, depressed painful ulcer (canker sore, or dyspeptic ulcer).

Etiology :

The condition occurs more often in women than men and mainly between the ages of 20 and 50 years. The ulcers appear at times of emotional stress, or may arise in crops at irregular intervals. No virus is found as a causative agent. Aphthous ulcers may first develop at the time of the menopause in women and occasionally are present during pregnancy.

Symptoms :

(1) The aphthae consist of small raised vesicles, each surrounded by a red areola.

(2) The commonest sights are buccal mucosal membrane and inside the lips, the tongue and less often in the fauces.

(3) In about 10% of women patients, painful ulceration of the vulva and vagina may occur at the same time.

(4) The vesicles rapidly burst, leaving small grey ulcers which may be solitary or very numerous.

(5) There is no constitutional disturbance, but there may be dyspepsia and sometimes loss of weight owing to pain on mastication, reducing the amount of food eaten, or to an anxiety neurosis.

Treatment :

(1) **Borax.** Aphthous inflammation of the mouth which is very hot and dry ; mucous membrane bleeds easily ; child starts up in fright, throws his arms about, is pale and livid and looks shrivelled up ; offensive breath ; puffy, indented tongue.

(2) **Helleborus Niger.** Aphthae with increased saliva, cankers with yellowish-red edges.

(3) **Hydrastis.** One of the best remedies for aphthous stomatitis in poorly-nourished children ; the membrane is full of ulcers and the tongue is coated yellow, or is large and flabby with imprints of teeth ; excessive secretion of thick tenacious mucus.

(4) **Salicylic Acid.** Common, painful, depressed sores.

(5) **Lycopodium.** Painful depressed sores near the fraenum (under the tongue).

(6) **Lachesis, Nitric Acid, Phytolacca, Natrum Hypochloricum.** All have canker sores.

(7) **Sulphuric Acid.** Aphthous sore mouth with soreness ; mouth and tongue covered with blisters, breath offensive and gums are white.

(8) **Arg. Nit.** For nervous, dyspeptic, flatulent persons with considerable ulceration.

PARASITIC STOMATITIS (THRUSH)

(Moniliasis)

Definition :

Thrush is a form of stomatitis due to a 'fungus' ; characterised by the formation of whitish, exudate-like patches on the mucous membrane of the mouth, tongue, or pharynx.

Etiology :

Thrush, an infection of the pharynx with *candida albicans* is most common in weak, emaciated infants with gastro-intestinal symptoms who have been fed with unsuitable diet and whose mouths have not been kept clean. It occurs in epidemic form in badly-managed institutions being spread by dirty feeding bottles, transmitted by the nipples, or carried in the air. It may also follow treatment by anti-biotics, leading to vitamin deficiency and stomatitis and at the same time it allows infection with monilia to take place.

Symptoms and Signs :

(1) A considerable amount of burning pain is often felt.

(2) The tongue and sometimes the entire buccal cavity is covered with a slightly raised, dry, grayish-white, somewhat adherent membrane, which later becomes ulcerated, bleeds, and spreads to pharynx, larynx and oesophagus.

Differential Diagnosis

Thrush has to be differentiated from aphthae. In *Thrush* the mouth is dry, while in *aphthae*, there is salivation. In *aphthae*, the vesicles appear first, which later ulcerate. The microscopic examination for the presence of *candida albicans* in thrush should clarify the diagnosis further.

Treatment : General :

Fruit, fresh vegetables, fresh meat for food and fresh lime juice for drink should be given.

Curative :

(1) **Baptisia.** Indicates conditions in which blood oozes from the gums, which are dark-red and offensive ; great foetid salivation ; gums ulcerated, tongue is cracked and mouth is exceedingly offensive; mucous membrane is in a most unhealthy condition.

(2) **Borax.** is indicated, when thrush is located on the inner surface of the cheeks ; may be also on tongue and fauces.

(3) **Bryonia.** Nursing sore-mouth ; the child refuses, to nurse until its mouth has been moistened.

(4) **Mercurius.** Sore-mouth with salivation ; tendency to ulceration of all forms, especially flat and superficial ulcers. The presence of diarrhoea is an essential indication. Gums are spongy and swollen. The glands about the neck are also swollen.

(5) **Muriatic Acid.** Deep bluish ulcers in the mouth having dark edges ; the mucus membrane is *denuded* ; the salivary glands are swollen and tender.

(6) **Aconite.** If the attack commences with fever.

(7) **Aethusa.** With aphthae in the mouth, the child vomits milk and then falls asleep.

(8) **Arsenicum.** The parts affected become livid and purplish. The patient experiences utter weakness, burning and thirst for small quantities of water.

(9) **Carbo Veg.** When the tongue is immovable.

(10) **Chamomilla.** When nervous symptoms appear.

- (11) **Hepar Sulph.** From abuse of *mercury*.
- (12) **Staphysagria.** When ulcers bleed easily.
- (13) **Sulphur.** When all other remedies fail.

DISEASES OF THE TONGUE

ACUTE GLOSSITIS

Definition :

Glossitis is an inflammation of the tongue, and is generally confined to more superficial parts of the tongue. But it may pervade the whole substance of the organ. It may be acute or chronic.

Etiology :

Acute glossitis results from irritant poisons, septic infections including dental caries, mercurialism, eruptive fevers, pneumonia and partly sprue and pellagra. Deficiency of vitamin B may also cause glossitis. Chronic, scattered glossitis is often a manifestation of syphilis in its third stage. It is also caused by chronic alcoholism, septic mouth and absence of free hydrochloric acid in stomach.

Signs :

Its signs are redness, heat and swelling. In severe cases, the swelling is so great as to threaten suffocation. It ends either in resolution, suppuration, or hardening.

Treatment :

(1) **Lachesis.** Blisters on the inflamed tongue, which change into ulcers.

(2) **Sulphuric Acid.** Mouth and tongue covered with blisters and ulcers ; breath offensive and gums are white.

(3) **Apis.** Acute Oedema ; tongue fiery red, swollen, sore, and raw with vesicles ; tongue trembling, gums swollen.

(4) **Muriatic Acid.** Tongue pale, swollen, dry, leathery, paralysed. Deep bluish or hard lumpy ulcers on tongue ; foetid breath.

(5) **Aconite.** For glossitis with fever.

(6) **Sulphur** is the main remedy which seldom fails.

(7) **Arsenicum.** If weakness prevails.

CANCER OF TONGUE

Definition :

The cancer of tongue is a small hard lump, usually at the edge near the tip of the tongue. It breaks into an ulcer with raised edges and uneven bottom. Carcinoma of the tongue should be the diagnosis whenever an elderly man (sometimes a woman) presents a fungating growth or an ulcer having raised and indurated margin, at the lateral border of the anterior two thirds of the tongue.

Etiology :

It is still unknown. But the following pre-cancerous conditions may lead to carcinoma later on. They are :

- (1) a dental ulcer against a sharp tooth,
- (2) chronic superficial glossitis,
- (3) a sessile papilloma,
- (4) syphilis, and
- (5) Plummer-Vinson syndrome.

Symptoms :

- (1) The motion of the tongue is difficult.
- (2) The tongue is swollen and painful.
- (3) A great deal of saliva is present.
- (4) The patient spits all the time.

Signs :

- (1) Glands under the tongue are swollen.
- (2) Lymphatic glands of the neck also swell and harden.
- (3) The tongue becomes firmly attached to the bottom of the mouth.
- (4) The cancer gets transformed into a mis-shapen, thick shortened lump and emits a terrible smell.

Treatment :

- (1) **Alumen.** Tongue dry; burning, sour feeling, stitches, worse at tip.

- (2) **Aurum Met.** Stony hard nodules on the tongue.
- (3) **Condurango.** Painful pustules on right side of the tip, or upper surface ; pain in left half of the tongue.
- (4) **Hydrastis.** Tongue, as if burned or raw, dark-red appearance and raised papillae.
- (5) **Kali Cyanide.** Cancer of the right side of tongue, with indurated edges ; worse from 4 a. m. to 4 p.m.
- (6) (i) **FULIGO LIGNI,**
 (ii) **GALIMUM,**
 (iii) **SEMPERVIVUM TECTORUM** are other remedies of use for a scirrhus cancer.

DISEASES OF SALIVARY GLANDS

(Mumps)

(Epidemic parotitis, infective parotitis)

Definition :

It is an acute infectious disease normally characterised by swelling of the parotid or other salivary glands.

Etiology :

Mumps is due to infection by a virus which has an affinity for glandular and nervous tissue (Para-influenza No 1 and 2). Mumps occur all over the world, being endemic in large areas of population. Although a primary disease of the childhood, no age is exempt. It is rare in infants. Epidemics are commonest in the spring, but may arise at other times of the year.

Infection is direct from patient to patient, but subclinical infection is not uncommon. The virus probably enters the nose or mouth. Some believe it to be in the parotid glands, others consider that it takes place in the epithelium of the respiratory tract. A viraemia occurs at the onset of the illness with localisation in glandular and nervous tissues.

Symptoms :

(1) The incubation period is 18-20 days with probable extremes of 14-30 days.

(2) In majority of cases there is swelling of parotid glands, but mumps without salivary gland involvement is rare.

(3) In the common form, swelling of the parotid is the first sign of the disease.

(4) There may be mild fever and constitutional symptoms which precede the glandular swelling. Earache or pain in the region of masseter or shivering with slight sore-throat may be premonitory symptoms.

(5) The swelling subsides after a few days.

(6) After about 24 to 48 hours, the swelling of other gland takes place.

(7) Occasionally this period extends from seven to ten days.

(8) The sight of food may cause an increased ache due to salivary secretion.

(9) Trismus may occur.

(10) A moderate degree of cervical lymph node enlargement may accompany mumps. Moderate pyrexia (101° to 102°F) may accompany the onset and persist for a day or two, but many attacks may remain afebrile. A relative bradycardia is sometimes a feature in febrile patients. One attack usually confers long immunity.

Complications :

(1) Orchitis is by far the commonest one. In most cases, one testicle is generally involved.

(2) second most common is septic meningitis. Less frequent complications are.

(3) in females oophoritis, and

(4) pancreatitis.

Treatment : General :

(1) The patient should be isolated.

(2) The diet should be liquid, afterwards semi-solid, till pain disappears. As a prophylactic remedy *Parotidinum 30* should be given.

Curative :

(1) **Belladonna**. Fever and nervous irritability ; glands swollen, hot, red and sensitive to pressure, worse on right side ; pains, flying and lancinating, extend to ear. It is also indicated, when swelling subsides, and there is a throbbing headache and delirium.

(2) **Mercurius**. This is the best remedy undoubtedly, if there is slight fever with tenderness, salivation, offensive breath and threatening suppuration.

(3) **Pulsatilla**. Useful, when there are complications of orchitis and mammary glands. The tongue is coated thickly white ; and the mouth is dry. Pain is worse in the evening and on lying down.

(4) **Carbo Veg**. When the swelling becomes very hard or the patient has taken much calomel.

(5) **Rhus Tox**. For dark red swellings with tendency to erysipelatous inflammation and typhoid conditions (diarrhoea) ; Much aching pain in limbs, restlessness, worse at night ; useful in secondary parotitis. (*clematis* and *Aurum*, if *Pulsatilla* fails in Orchitis).

(6) **Pilocarpine Muriate 3x**. It effects the parotid glands.

(7) **Conium**. For excessive hardness of the swelling.

(8) **Lachesis**. Useful when the colour is purplish and is on the left side.

PTYALISM

Definition :

This is a morbid condition, circumscribed by excessive secretion of saliva, *ptyalin* from the salivary glands.

Etiology :

(1) The flow of saliva is increased by reflexes, originating in the mouth and also in more distant situations, *e.g.* in conditions like stomatitis, carious teeth, epithelioma of the tongue, trigeminal neuralgia, &c.

(2) Mechanical irritation of the oesophagus, caused by the passage of a tube into the stomach or by the impaction of a foreign body causes salivation which is a common symptom in achalasia of the cardia and in simple and malignant ulceration of the oesophagus.

(3) Reflex salivation is also the cause of water brash associated with duodenal ulcer.

(4) The salivation which may occur during menstruation and in the early months of pregnancy is also reflex in origin.

(5) Salivation is common and sometimes a very distressing symptom of *paralysis agitans* and post *encephalitic parkinsonism*.

(6) Ptyalism may be caused by excessive smoking.

(7) It is also caused by the specific stimulating action of certain allopathic drugs, such as iodides and mercury.

Symptoms :

(1) Every time saliva is swallowed, air passes with it into the stomach.

(2) In neurotic individuals, a spitting habit or swallowing tic may develop.

(3) The patient complains of severe flatulence with excessive belching.

Treatment :

(1) **Mercurius.** Excessive salivation during pregnancy with sore gums and mouth.

(2) **Iodine.** When it is due to mercury and other drugs.

(3) **Iris V.** Ptyalism accompanying nervous headache.

(4) **Allium Sativa.** Copious salivation after eating.

(5) **Jaborandi (Pilocarpus).** Due to nervous causes and in pregnancy ; saliva viscid, like of an egg.

RANULA

Definition : It is a swelling of the sublingual gland.

Ranula is cystic enlargement of a portion of the sublingual

salivary gland and appears as a soft, bluish painless mass on the floor of the mouth under the tongue.

Etiology :

This is not yet known.

Signs :

The objective signs are as follows :— It is a soft, elastic, fluctuating, and a transparent kind of blister or bag, whose sheath is similar to a fine serous membrane, and contents of which consist of a gluey, transparent, pale-yellowish or brownish fluid or alkaline reaction. It may grow to a considerable size to interfere with chewing, talking and even breathing.

Treatment :

The following remedies may be applicable according to indications.

- (1) Calcareo Carb.
- (2) Belladonna.
- (3) Fluoric Acid.
- (4) Mercurius Solubil.
- (5) Thuja.

DISEASES OF TONSILS (Acute Tonsillitis)

Definition :

The tonsils are two almond-shaped glandular organs situated one on each side of the fauces between front and the back pillars of the soft palate. Tonsillitis is an inflammatory infection of the lymphatic tissue and is contagious, being usually caused by streptococcus infection. It may be acute or chronic.

Etiology :

(1) This common disease principally affects children and young adults.

(2) The infecting organism is usually a haemolytic streptococcus of Lancefield's group A.

(3) The mode of spread is by droplet dust infection and the disease flourishes in conditions of overcrowding and poor ventilation.

(4) Occasional outbreaks can be traced to infected milk supplies.

(5) The disease also occurs in scarlet fever, measles and many acute infections of the upper respiratory tract.

Symptoms :

(1) Severe soreness of the throat with difficult swallowing reveals the condition on examination.

(2) The temperature may rise to 103°F or more with headache, muscle and joint pains.

(3) Swallowing of liquids and saliva causes acute discomfort.

(4) The voice becomes thick and breath foul. There is tender adenitis.

(5) Earache during the course of the disease due to the development of acute otitis media may be a complication.

(6) The tonsils are swollen and inflamed often with pus exuding from the crypts (vault).

(7) The tongue is coated ; the fauces, soft palate and uvula are inflamed and may be covered with sticky mucus.

(8) Occasionally peritonsillar abscess or lung infection occurs and rarely acute nephritis or acute rheumatism may follow.

Diagnosis :

Many conditions begin with sore-throat and fever. Differential diagnosis is important. Diphtheria should not be forgotten. This disease begins more insidiously than tonsillitis and the symptoms and general reactions are less marked, while adenitis is often very considerable. The diphtheric membrane may cover the fauces and soft palate as well as the tonsils. There is a characteristic musty odour which can be easily recognised.

Agranulocytosis and acute leukaemia may also simulate acute tonsillitis, though in these conditions ulceration in the pharynx is usually a marked feature. Tonsillitis should resolve within a week

under adequate treatment. If this does not occur, suspicion of one of these alternative diagnosis should be investigated by means of a throat swab.

CHRONIC TONSILLITIS

Symptoms :

(1) Young adults are the usual sufferers. There may be a history of frequent attacks of acute tonsillitis, often dating from childhood or the condition may have developed recently.

(2) In others, there are no severe acute aggravations, but a more or less constant discomfort and soreness in the throat without much general reaction and sometimes accompanied by laryngeal infection. Chronic tonsillitis may be secondary to chronic sinusitis or dental sepsis.

Treatment :

Curative. (1) **Belladonna.** One of the initial remedies to follow after Aconite or Ferrum phos. stage has passed. There is *redness* and *swelling* to indicate it. The neck is stiff and swollen externally and ulcers rapidly form. The right side is affected more.

(2) **Calc. Phos.** Chronic enlargement of tonsils in children with glandular tendency. The tonsils are flabby, pale with follicular inflammation.

(3) **Baryta Carb.** This remedy is especially useful, when the internal texture of the gland is involved, *i.e.*, the trouble is not superficial. There is no suppuration. The attack is due to exposure, with cold settling down in the tonsils, which are originally enlarged. It has affinity for right side and suits scrofulous cases. (*Baryta Mur.* for chronic hoarseness; *Baryta Iodide* in chronic cases with enlargement.)

(4) **Gelsemium** : Unbearable pain or swallowing in a red-inflamed throat. The painful spot is deep in tonsils and there is generalised bodyache.

(5) **Phytolacca.** Useful for follicular tonsillitis with pain at the root of tongue, when swallowing. The colour is dark blue ; the tonsils are large with intense dryness, smartness and burning in throat

(6) **Ignatia** is specific for follicular tonsillitis. The chief indications are ; a plug in throat, worse when not swallowing and small yellowish ulcers.

(7) **Guaiaacum**. Catarrhal tonsillitis to be used at the early stage, the symptoms being violent burning, headache, hot throat, chill and aching in back and limbs. abscesses quickly form

(8) **Hepar Sulph.** Splinter-like lancinating pains and much throbbing which shows that an abscess is in the act of formation. Parts sensitive to touch, (*Sulphur*. for tendency to relapses)

(9) **Silicea**: is indicated when the abscess is broken and does not heal.

(10) **Mercurius Sol.** To be used at an advanced stage, when pus has formed: there is great swelling and the fauces are deep red, tonsils are dark blue, saliva is dribbling : breath, foul but pains less than in *Belladonna*.

(11) **Kali Mur.** A specific for follicular tonsillitis. The throat is grey with white spots and much swelling.

(12) **Lachesis**. Dark angry-looking parts ; very great swelling and much tenderness, left tonsil involved but there is a tendency for the trouble to go to the right side; aggravation from hot drinks.

(13) **Apis**. Useful for the simple form, the throat being swollen both inside and outside ; superficial complaint.

(14) **Calc. Iodide**: For enlargement of tonsils which are hard, red and nodular.

(15) **Lycopodium**: for chronic enlargement of tonsils which are covered with small ulcers.

Note. A dose of *Bacillinum* 200 once a week is of great help in chronic cases, as an intercurrent remedy.

PERITONSILLAR ABSCESS OR QUINSY

Definition :

This is an acute inflammatory condition of the tonsil with abscess formation (peritonsillar abscess).

Etiology :

The abscess develops between the capsule of the tonsil and the muscular bed of the fossa. The usual situation is above and lateral to the tonsil, but rarely it develops behind it. Previous tonsillitis and peritonsillar abscess are predisposing causes.

Symptoms :

(1) The affection is almost always unilateral and develops during an attack of acute tonsillitis.

(2) The condition suddenly worsens with increased pain radiating to the ear and enlarged tender glands on the affected side.

(3) Marked trismus develops and there is a sharp rise of temperature.

(4) The affected side shows a large red swelling of the soft palate with the tonsil pushed downwards and medially.

(5) Pus forms in 2-4 days and if spontaneous rupture occurs, there is immediate relief of symptoms.

VINCENT'S ANGINA**Definition :**

This ulcerative condition is an infection of the mouth and throat due to two organisms in their natural relationship.

Etiology :

It is believed to be due to the combined infection of the fusiform bacillus and *Borrelia Vincenti*, mutually assisting each other. These organisms are found in many ulcerative conditions of the mouth and the throat. The invasion of the throat is secondary. It must, however, be noted that it has never been established beyond doubt that these two organisms are the cause of these lesions. It is quite possible that they are secondary invaders. Affection of the throat is frequently secondary to periodontal infection. It occurs especially in debilitated persons, in acute leukaemia, and in aplastic,

anaemic conditions. Infection can be transmitted through drinking, utensils and under insanitary conditions, and was common during both World Wars.

There are yellowish-grey pseudo-membranes on or behind the tonsils. When detached, they leave an ulcer. The glands are enlarged and tender. It should be distinguished from Diphtheria by the presence of fusiform bacilli and borrelia in the blood.

DISEASES OF PHARYNX **(Acute Catarrhal Pharyngitis)**

Definition :

This is not a well-defined affection, and is usually accompanied by acute rhinitis on the one hand and by laryngitis on the other. The tonsils also often participate in the inflammation

Etiology :

The affection is often the result of coryza and it is a feature of various acute infectious fevers, such as, measles, German measles, scarlet fever, influenza and typhoid.

Symptoms :

(1) The discomfort varies from a tickling sensation, or the feeling of a lump in the throat, to severe dysphagia.

(2) The voice is husky and thick, and the cervical glands tender and somewhat enlarged.

(3) There is slight fever and general malaise.

Signs :

(1) The pharynx is to a varying degree red and swollen, especially at the sides.

(2) The palate is swollen and relaxed, and the uvula elongated.

(3) The posterior wall is often covered by a film of tenacious mucus.

Diagnosis :

The disease may imitate diphtheria in its early stages and syphilitic ulceration later. In both cases the discovery of numerous spirilla and fusiform bacilli in smear preparations will help to confirm the diagnosis.

The sub-acute onset, the raised temperature and the tenderness of glands aid the differentiation with Syphilis and from diphtheria, the milder constitutional symptoms, the soft pliable character of the membrane and the absence of diphtheria bacillus.

CHRONIC PHARYNGITIS (Pharyngeal Hyperaesthesia)

Etiology :

Chronic pharyngitis is usually secondary to chronic infection in the nasal sinuses, tonsils or teeth. It is aggravated by mouth breathing, smoking and over-indulgence in alcohol. Excessive use or misuse of the voice perpetuates the condition which may be initiated by an acute catarrhal pharyngitis which fails to resolve satisfactorily.

Symptoms :

(1) Discomfort may take the form of aching, fullness or feeling of a lump, a hair or a pricking.

(2) The voice has a dead tone, and there is much hawking and frequent swallowing.

(3) The sufferer often becomes depressed and fears that he has a cancer of the throat ; the unpleasant sensations are markedly lessened after a meal.

Signs :

(1) The mucosa of palate and the pharynx is thickened ; the uvula is elongated.

(2) The wall of the pharynx is sometimes set with raised pink nodules, known as granular pharyngitis.

(3) Patients suffering from atrophic rhinitis may complain of dryness of throat. The posterior pharyngeal wall sometimes presents a glazed appearance.

Treatment :

(1) **Kali Mur.** This is one of our best remedies for follicular pharyngitis, or ulcerated sore-throat due to gastric disturbances,

where there is a grey or white exudation ; and the tonsils are swollen and inflamed, so as to have greyish spots or ulcers on them.

(2) **Belladonna**. Great dryness and brightness of throat with glazed appearance. Inner mouth is inflamed and tonsils are swollen and enlarged ; constricted sensation, worse on swallowing. Pharyngitis, due to cold and catarrh with great dryness, is specially indicated. Liquids are generally ejected through the nose.

(3) **Mercurius sol**. Great dryness and soreness of throat ; constantly swallowing motion and soreness are characteristics. The throat is raw and burning, also red and inflamed. An offensive breath is a guiding symptom.

(4) **Mercurius Cor**. Uvula swollen ; intense burning ; worse from pressure ; throat is dry, stiff, and has a constrictive feeling. The external throat and glands are enormously swollen.

(5) **Phytolacca**. Chronic follicular pharyngitis, when throat is dark in colour and the parts feel sore with pain on swallowing ; aching in back and limbs. The right side is more affected.

(6) **Kali Bichromicum**. Sore throat, tonsils swollen ; ulcers with purulent discharge ; tongue coated yellow at base, sticky mucus in pharynx, sensation of dryness, of burning and of rawness, or a scraping feeling, as if something was sticking in the throat.

(7) **Sanguinaria Nitrate**. Chronic follicular pharyngitis with burning, soreness, and rawness in pharynx.

(8) **Guaiacum**. Almost a specific in acute pharyngitis, worse on right side, where tonsils are swollen and the throat is so dry that the patient must drink to assist swallowing ; the throat is less red than Belladonna.

(9) **Apis**. Stinging pain in throat with oedema ; throat feels constricted and pharynx has a shining appearance ; blisters in throat.

(10) **Hepar Sulph**. Sharp splinter-like pain in throat, or a sensation of a lump in throat ; suppurative throat troubles, tonsillitis, pharyngeal abscess, are well indicated.

(11) **Argentum Nitricum**. Sensation of splinter in throat when swallowing, secretion of clear tenacious mucus ; rawness in pharynx and larynx with an altered tone of voice.

(12) Natrum Mur :

(i) Tobacco user's sore-throat.

(ii) Sensation of hair in the throat ; uvula elongated.

(13) **Nux Vom.** It is suitable for the irritated throats of the smokers, drinkers and preachers with a scraping sensation ; chronic pharyngitis.

(14) **Graphites.** Chronic sore throat with a sensation of a lump in the throat.

(15) **Alumina.** Useful in relaxed conditions of the mucus membrane of the throat, as in clergyman's sore throat, which is dark-red with elongated uvula ; dryness is prominent ; and a glazed outlook ; relieved by tea and warm drinks.

DISEASES OF OESOPHAGUS**Achalasia of the cardia****(cardiospasm)****Definition :**

This is a disturbance of swallowing and function of the oesophagus due to denervation, mainly of the lower part of the body of the oesophagus, with subsequent muscular hypertrophy.

Etiology :

This is unknown. The condition affects both men and women. True achalasia has no geographical distribution.

As it happens with denervated smooth muscle, the muscular wall of the oesophagus is hypertrophied. In long standing cases, the gullet is dilated and also elongated and may take a sigmoid shape. The mucosa is inflamed probably from irritation by stagnant putrefying residue in the gullet. In advanced cases 3 to 8 per cent will have an associated carcinoma of the lower end of the oesophagus. In addition, there may be changes in the lung from aspiration of liquifying gullet contents.

Clinical Features :

(1) Symptoms may occur at any age ; there has, however, been a disturbance in swallowing for many years.

(2) The onset when it actually comes, appears a sudden one.

(3) The common presenting feature is dysphagia, equally severe either with solids or liquids.

(4) Initially the symptoms are intermittent and periods of remission may last long for many months.

(5) The attacks are put down to fatigue or stress.

(6) As dysphagia becomes more persistent, regurgitation sets in first in recent meals, and eventually there may be regurgitation of putrefying remnants of meals taken several days previously.

(7) Pain may be present in 80% of patients and this may be on swallowing. Severe pain may be connected with spasms passing on to the throat or down the arms.

(8) Weight loss ensues, and when liquids are unable to be taken, the patient becomes dehydrated.

(9) The patient may have nocturnal coughing and recurrent chest affections, causing symptoms of pyrexia.

(10) A routine X-ray check-up may show a widened mediastinum.

Diagnosis :

This is made on a barium swallow and shows great dilatation of the gullet. Oesophagoscopy should be performed to exclude the presence of associated carcinoma.

Prognosis :

Cure is possible only, if the treatment is conducted before there is complete dilatation of oesophagus. Diagnosis may usually be made on a barium swallow which in advanced cases shows gross dilatation of the gullet.

Treatment :

(1) **Arsenicum** : dryness, thirst, anguish, restlessness, burning, when swallowed food goes down only up to the larynx, and is then ejected.

(2) **Belladonna.** Pressing pain like contraction, and a feeling, as if a foreign body had lodged fast in the oesophagus. Belladonna relieves the spasm and lets the swallowed food down.

(3) **Kali Bichromium.** Burning in the entire oesophagus ; solid food is painful and difficult to swallow, leaving a sensation, as if something remained there.

(4) **Lachesis.** The attempt to swallow solids, causes a feeling that something has gone the wrong way, bringing on violent gagging.

(5) **Mezereum.** Violent burning and soreness in the upper half of oesophagus, swallowing, painful and difficult, especially as a result of taking mercury.

(6) **Natrum Mur.** Only liquids can be swallowed ; solid food reaches only a certain place, whence it is ejected with fearful gagging and suffocation ; hawking up of phlegm in the morning, obstinate constipation.

(7) **Cicuta Virosa.** When after swallowing food, there is a danger of suffocation.

(8) **Hydrophobinum.** Periodical spasm of the oesophagus ; burning and stinging in throat ; cough, gagging ; difficulty in correct speech.

(9) **Hyoscyamus.** Spasmodic contraction after a previous injury of the oesophagus ; fluids (not solids) cause spasm in the throat and stop respiration, hiccough, nausea, cough and stiffness of muscles of neck.

(10) Other remedies of importance are :

(i) Naja,

(ii) Ignatia,

(iii) Merc. Cor.,

(iv) Veratrum Viride,

(v) Phosphorus,

(vi) Alumina.

(vii) Asafoetida,

(viii) Cajuputum.

REFLUX OESOPHAGITIS

Definition :

It is an inflammation of the oesophagus which may lead to ulceration or stenosis produced by regurgitation of the acid-peptic juice from the stomach.

Etiology :

(1) Oesophagitis may occur after repeated vomiting, but usually clears up quickly when vomiting subsides.

(2) The most common cause is the repeated regurgitation of gastric juice which occurs due to the lack of sphincteric action in patients with hiatus hernia. How the cardiac sphincter precisely acts is still not clear, but much of its efficacy is lost when herniation occurs.

Clinical features :

(1) The important symptoms of oesophagitis is heartburn, which is felt substernally and may be accompanied by regurgitation of fluid into the mouth.

(2) The heartburn may occur after meals, but is more typically associated with change of posture *e.g.* bending down at work or lifting or straining, it may occur at night on lying down, obtain relief by sitting up.

(3) The nocturnal pain of duodenal ulcer, usually comes between 2 and 3 a.m.

(4) The patient may also complain of a severe pain or the sensation of food sticking which amount to dysphagia. This pain should not be confused with angina pectoris.

(5) Bleeding often occurs in patients with hiatus hernia and may be suspected as the cause of iron deficiency anaemia.

(6) Severe haematemesis from peptic oesophagitis is rare and severe bleeding comes from a small ulcer in the hernial sac.

Diagnosis :

The diagnosis is confirmed by radiology on the presence of hernia with oesophageal reflux. Again leukoplakia of the oesophagus will point out its inflammation. Ulceration is another clinical feature.

Complications :

- (1) Anaemia.
- (2) Progressive emaciation.
- (3) Persistent aerophagy.

Prognosis :

In mild cases, the recovery may be satisfactory. In others, stagnation and degeneration may take place, and in a severe case, there may be death with perforation of the oesophagus.

Treatment :

The following remedies, if indicated, are suitable :

- (1) Belladonna (Fever)
- (2) Mercurius Cor. (Burning and great pressure)
- (3) Naja (spasmodic stricture and dryness)
- (4) Phosphorus (Burning and pain)
- (5) Veratrum Album (coldness, collapse, and sweat)
- (6) Gelsemium (Cramp-like pain)
- (7) Ignatia (spasm, and difficult swallowing of food).

Note : Peptic ulceration of oesophagus is located in the lower segment of oesophagus near the cardia, possibly because of the easy regurgitation of gastric acid juice that occurs during the stage of its inflammation. It has to be treated like any other ulcer, unless complications arise.

DIVERTICULA OF THE PHARYNX AND OESOPHAGUS**Definition and Etiology :**

This is a condition, in which pouches or sacs protrude from the wall of the oesophagus or pharynx, as a result of adhesions between the inflamed glands near the bifurcation of trachea and the wall of

the oesophagus These diverticula which are generally less than an inch in depth rarely give rise to symptoms. They are usually congenital in origin, but occasionally are found in association with achalasia of cardia. But, when they progressively become larger owing to the accumulation of food in it, they measure 5 inches in depth.

Symptoms and Signs :

- (1) Diverticula of the pharynx causes progressively dysphagia, accompanied with irritation of throat and increased mucous secretion.
- (2) During swallowing, there is obstruction in the neck.
- (3) Vomiting of food, mixed up with mucous, takes place.
- (4) The patient becomes emaciated gradually.
- (5) Distention of the sac causes pain.

Diagnosis :

The size, the shape and the exact position of the diverticula can be determined by X-Ray examination.

Treatment :

- (1) **Ignatia.** Food arrested at cardiac end of the gullet.
- (2) **Cicuta Virosa.** Strangling on an attempt to swallow ; throat feels, as if it were closed.
- (3) **Mercurius Cor.** Difficulty in swallowing ; burning less by pressure ; constriction.
- (4) **Phosphorus.** Burning and pain.
- (5) **Other remedies are :**
 - (a) Belladonna (vomiting)
 - (b) Lachesis
 - (c) Anacardium
 - (d) Kava-kava
 - (e) Phytolacca (choking, when eating or drinking)

CARCINOMA OF OESOPHAGUS

Etiology :

(1) The cause is unknown. It is common in China and France. It is less frequent in England and United States but whether it is due to environmental or genetic factors is unknown.

(2) It affects men *four times as commonly* as women in the United States, while the ratio in England is 2 : 1 and 8 : 1 in Finland.

(3) This variation may be partly due to the association of upper oesophageal lesion with chronic iron deficiency which is more common in women.

(4) Other predisposing factors are chronic irritation of the oesophagus by alcohol and tobacco.

(5) There is a rare genetic form of carcinoma developing in some families with tylosis, an affection of skin of the hands.

Symptoms and Signs :

(1) Dysphagia is almost always present, and is generally the earliest symptom.

(2) After about 8 months, both food and water almost do not pass.

(3) Pain occurs in some cases, and is absent in others.

(4) Food is almost always brought out sooner or later after about one or two months of the growth. This regurgitation gives relief to any pain that may be present.

(5) Progressive emaciation occurs when obstruction is complete.

(6) The vagus or the intercurrent laryngeal nerve may be involved and gives rise to laryngeal paralysis.

(7) Perforation into trachea or bronchus gives rise to paroxysms of cough and dyspnoea, whenever the food is swallowed.

(8) Perforation into the pleural cavity may produce empyema.

Diagnosis :

(1) The presence of a hard gland in the neck makes the diagnosis of cancer extremely probable.

(2) By oesophagoscopy, the nature of obstruction can generally be recognised, if the X-Ray examination leaves the diagnosis in doubt.

(3) The diagnosis is difficult, when the cancer at the lower end is contiguous to the cancer of stomach near the cardiac. It may be noted that with the former, dysphagia is the first symptom, and with the latter loss of appetite, pain after food, loss of weight and strength, vomiting and increasing pallor may appear before dysphagia.

Prognosis :

Death most commonly occurs within 6 to 12 months in malignant cases due to broncho-pneumonia and exhaustion from starvation.

Treatment :

For epitheliomata, Conium is the best remedy and Hydrastis is the next best.

DIAPHRAGMATIC HERNIAS

Definition :

The diaphragm has several openings through which herniation of abdominal viscera into the thorax can occur. Of these openings, the most important is the oesophageal hiatus. In middle-aged and elderly people particularly, the oesophageal attachment weakens, so that the herniation of the intra-abdominal oesophagus and stomach readily occurs.

Three types of hiatus hernias usually described are :

1. Congenital short oesophagus :

2. Para-oesophageal hiatus hernia. In this condition a knuckle of stomach herniates alongside the oesophagus through the hiatus, while sometimes the entire stomach may be above the diaphragm.

3. Sliding Hernia. In this variety both the cover part of the oesophagus and part of the fundus of the stomach herniate into the thorax and gastric reflux readily occurs. It is by far the most common form.

Etiology :

Type 2 & 3 hernias usually develop in middle life and are associated with some weakness of the connective tissue holding the oesophagus to its hiatus. They are more common in women than in men and in the flabby rather than in the lean and muscular subjects. The actual herniation may be precipitated by any condition that increases inter-abdominal pressure, the most common being pregnancy and obesity.

Clinical Features :

Many of the hernias are symptomless and are discovered accidentally by the radiologist. Hiatus hernia usually gives rise to symptoms, when the sphincteric action of the cardia is lost and free regurgitation of acid-peptic juice occurs. This produces the condition of reflux oesophagitis. The patient may show deficiency anaemia. Type 2 hernia is less commonly associated with oesophagitis. The patient may complain of a substernal feelings of discomfort following food due to distention of the hernial sac.

Treatment :

Surgical treatment will be necessary in this case.

OTHER HERNIAS

These are classified as follows :

1. **Inguinal hernias.** This is the intrusion into the inguinal canal alongside the spermatic cord in the male.
2. **Strangulated hernia.** In this the blood supply to the organ is usually impaired due to constriction.
3. **Umbilical hernia.** It is the protrusion through the area of umbilical scar due to the strangulation of a loop in the intestine.

Treatment :

1. Initially *Aconite* and *Nux vom* should be administered every 10 to 20 minutes.
2. **Calc. Carb.** is meant for the hernia of children.
3. **Silicea** is for the hernia of rickety children.
4. **Aesculus** for the inguinal hernias.
5. **Lycopodium** for umbilical.

The strangulated hernia should be operated upon.

DISEASES OF THE STOMACH AND DUODENUM **(Gastritis)**

Introduction :

The term was often loosely used to describe a gastroscopic picture, or invoked to explain "indigestion" especially if this followed some dietary excess. It is now thought that many changes seen on gastroscopy are due to changes in the mucus blood flow, mucus production and tone of the muscularis mucosae.

Etiology :

Gastritis should really be confined to the conditions where true inflammation was present in the mucosa. It may either be diffuse or localised.

Diffuse gastritis may be either acute or chronic.

Acute gastritis may be due to the ingestion of irritant substances, such as drugs, alcohol and corrosives.

Symptoms :

Clinically it has a brief course with abdominal discomfort and sometimes vomiting. Inflammatory changes can also occur in such infections as diphtheria, infective hepatitis, and are rarerly associated with suppuration due to infection by streptococci or staphylococci.

ACUTE PHLEGMONUS GASTRITIS

Etiology :

It results from irritant poisons, such as concentrated acids, alkalis, arsenic and antimony.

Symptoms and Signs :

1. Local symptoms are similar to acute suppurative gastritis, except that the vomited matter contains blood frequently.
2. The patient may pass into coma and collapse.

CHRONIC GASTRITIS

Definition :

Chronic gastritis is a continuation of badly treated and ill managed acute attacks. Currently chronic gastritis is divided into

1. Superficial gastritis,
2. Atrophic gastritis and
3. Gastric gastritis, the latter condition being associated with pernicious anaemia.

Localised forms of gastritis are the

1. antral gastritis, which occurs in duodenal ulcer patients,
2. the zonal gastritis which surrounds a gastric ulcer or gastric carcinoma, and
3. chronic gastritis, which follows a gastro enterostomy or partial gastrectomy.

Etiology :

1. Some cases have no specific cause, others are often the result of an acute attack.
2. Some cases may be due to mechanical pyloric obstruction.
3. Pyloric stenosis due to an ulcer, simple pyloric spasm, carcinoma or congenital stenosis may also lead to gastritis.
4. Gastritis is sometimes present around gastric ulcers.

Symptoms and Signs :

1. Rigidity, thickening and coarseness of mucosal folds may be demonstrated by radiological examination.
2. Haematemesis may occur from an acute ulcer.
3. It may be associated with nausea, especially early in the morning, with loss of appetite.
4. Alcoholic gastritis is characterised by inability to eat in spite of a good appetite.
5. Slight epigastric discomfort (fulness), pressure or heaviness, relieved by belching, is common. Achlorhydria, heartburn and sour regurgitation may occur.

6. Vomiting occurs, if nausea is severe.
7. Constipation or diarrhoea is generally present.
8. Tongue is generally clean, but in alcoholic gastritis, it is furred.

Diagnosis :

This is made on the following basis : The pain lasts whole day. There is vomiting in the morning with mucous, but no blood is vomited. Local signs are diffuse tenderness in the epigastrium, with no tumour ; the tongue is furred and blood shows hyperchromic anaemia. X-Ray shows distortion or atrophy of mucosa ; hyperacidity is present.

Prognosis :

Recovery takes place with proper treatment, unless gastritis is caused by poisoning or some acute infection.

Treatment :

General : If the trouble is chronic, the diet should be non-irritating, as milk, sooji, soft-boiled rice, toast, soft vegetables, (boiled and made into a paste) and afterwards small fish or chicken. In an acute attack, no food, except bits of ice, and glucose is allowed, till all the symptoms subside.

Curative :

1. **Aconite**. If gastritis is attended with fever, restlessness and fear of death (Try *Belladonna* if *Aconite* does not abate fever).

2. **Arsenicum Album**. This is the chief remedy, when there is extreme prostration and it is caused by the abuse of ice, ice-water, ice-cream, beer, tobacco (chewing) and alcoholic drinks ; nausea and vomiting of food taken, worse from rising up ; intense burning pains ; anxious restlessness ; great thirst for small quantities.

3. **Argentum Nitricum**. Gastritis caused by emotion, loss of sleep or menses in delicate and nervous women ; gnawing and ulcerative pain at pit of stomach which radiates ; least food makes pain worse ; longing for sugar, and aggravation from sweets in the

shape of diarrhoea ; gastric ulcer ; its gnawing pain is circumscribed to a small spot ; great flatulence and enormous wind passes out ; from abuse of alcohol.

4. **Bismuth.** For both acute and chronic cases, suitable for burning and lancinating pains of a purely nervous character with spasmodic vomiting ; from abuse of alcohol.

5. **Bryonia.** For acute cases only ; stitching pain in the region of stomach ; worse from motion and especially from a misstep ; tongue coated white, and dry without thirst, or else thirsty day and night ; effect of warm weather after eating flatulent food, or using cold drinks.

6. **Carbo Veg.** For chronic cases, flatulence in stomach which feels full and stony, relieved temporarily by belching ; eructations rancid, sour or putrid ; heaviness, fullness and sleepiness after eating. These symptoms are worse from fat, fish, ice-cream, vinegar, or change. Milk increases flatulence ; crampy pains which force the patient to bend double ; burning in stomach extending to back and along the spine to the shoulders ; should be given in degenerative conditions.

7. **China Off.** For chronic cases ; suits cases where food does not digest, but lies a long time in the stomach, causing eructations, and is finally vomited undigested ; feels satiated all the time, but still eats, and feels bad afterwards, fulness of bowels ; great lassitude and weakness ; bitter eructations and offensive flatus.

8. **Graphites.** For chronic cases that have got a burning, crampy, colicky pain, relieved by eating ; putrid rancid flatus ; distention of bowels and stomach (tympanitic), the patient being obliged to loosen his clothes ; sweets nauseating ; hot drinks disagree, and there is a rush of blood to head after eating. Patients inclined to obesity, always chilly and eruptions on the skin, are the main indications.

9. **Hydrastis.** For both acute and chronic cases ; catarrh of stomach with mucous, sour risings and loss of appetite. The

tongue is clean at sides and tip, with a yellow coating down the centre. The liver is involved and there is constipation.

10. **Ipecac.** When the stomach is chilled with ice-cream or ice-water, and there is constant nausea and vomiting with a clean tongue.

11. **Nux Vom.** For both acute and chronic cases ; dull frontal headache is a constant symptom in Nux diseases, gastric disturbances commence after half-an-hour of eating food ; nausea, sour, bilious vomiting, waterbrash, putrid taste ; vertigo ; eructations, painful and bitter or sour ; worse in the morning and after eating ; abnormal thirst and distention even after a light meal and a sensation of a lump or load in the stomach ; abuse of alcohol, tea or coffee.

12. **Aconite.** For acute cases with fever, restlessness and fear of death (Give *Bell.*, if this fails to abate fever and throat symptoms).

13. **Cantharis.** When with intense burning, there is urinary trouble (Strangury) in the bladder in acute gastritis.

14. **Phosphorus.** For both acute and chronic cases ; sensation of weakness and emptiness in the stomach ; vomiting of food and mucous mixed with bile and blood ; vomiting of water as soon as it becomes warm in the stomach.

PEPTIC ULCER

(Gastric and Duodenal ulcers)

Definition :

This indicates ulceration of the gastro-intestinal tract due to the combined action of hydrochloric acid and pepsin. This occurs most commonly in either the stomach or the duodenum, but it may also occur in the oesophagus, following gastro-oesophageal reflux. It may also occur in the jejunum after partial gastrectomy.

Etiology :

1. The precise reason of the triumph of acid and pepsin over the defensive mechanism of the mucosa is unknown.

2. There is, however, a tendency to greater secretion in patients with a peptic ulcer.
3. Patients of gastric ulcer tend to have lower secretion and some degree of gastritis.
4. Gastric ulcers occur three times more than duodenal ulcers.
5. A greater proportion of these patients are blood group O and so fail to secrete ABH blood group substance in the saliva.
6. Stress is generally considered to be a striking cause of peptic ulcer, especially for duodenal ulcer patients.
7. The mortality rate among smokers being higher, tobacco may be another predisposing cause although there is no positive evidence for it.
8. There is a greater danger in patients of rheumatoid arthritis who use aspirin and other allopathic drugs.
9. There is probably a higher incidence of the disease in patients with hepatic cirrhosis and chronic respiratory disease.
10. Hyper-parathyroidism is often associated with an increased incidence of peptic ulcer.

Symptomatology :

1. There is little difference between the symptomatology of patients with gastric and duodenal ulcers.
2. The main symptom which is pain, localised to the epigastrium, is periodic with remission lasting days and weeks, months or years.
3. The pain comes on later in the morning, becomes worse towards evening and rarely occurs after breakfast. It may wake the patient at 2 A. M. It may be eased or aggravated by food and often improved within 10 minutes of taking alkalies (e.g. milk).
4. Occasionally the patient vomits which eases the pain.
5. Another symptom is waterbrash which seems to be caused by an increased salivary secretion.

6. Occasionally heartburn and waterbrash may predominate.

7. On other occasions, the patient may have a painless course and present with a complication.

8. When the ulcer penetrates through the intestinal wall, perforation is said to occur. If this happens posteriorly it often passes into the pancreas and give rise to a fistula between the stomach, duodenum, colon, gall bladder or bile-duct. In such circumstances the periodicity of the pain changes and alkalies and food fail to relieve. There may be a severe back pain also.

Differential Diagnosis :

Duodenal ulcer is differentiated from **chronic gastric ulcer**, **stone** in the gall bladder or kidney, and **chronic appendicitis** by its characteristic pain. Diagnosis can be confirmed best by X-ray examination.

Prognosis :

With careful dietetic treatment and regulated mode of life, the prognosis is quite favourable.

Treatment :

Dietetic : (1) During the first week, milk diet, which may be flavoured with cocoa or coffee, is advised.

(2) During the second and third week, soft boiled egg, white pulp of bread, rice and sago.

(3) In fourth and fifth week boiled fish or chicken, custard, pudding, fresh cassein (Chhaina), soft vegetables, boiled and made into a paste, sooji, soft rice and fruit-jelly. Food is to be given every other hour or the third hour. Semi-solid food in adequate quantity is to continue for several months.

Curative :

(1) **Arsenicum**. With dry red tongue, thirst, or typhoid conditions, e.g., diarrhoea, delirium, etc., great prostration, vomiting soon after eating or drinking and great burning in stomach.

(2) **Kali Bichromium**. Round ulcers of stomach at the cardiac end ; pain relieved after eating ; vomiting of bright yellow matter ; cutting pain soon after eating.

(3) **Ornithogalum Umbellatum**. Its action is on duodenum and pylorus especially ; also for suspicion of stomach cancer. Contractive pain and abdominal distention. Complete prostration, nausea.

(4) **Uranium Nitrate**. Boring pain in pyloric region ; gastric and duodenal ulcers. Burning pain, abdomen bloated, excessive thirst ; nausea and vomiting.

(5) **Argentum Nitricum**. Gastric ulcer with gnawing pain circumscribed to a small spot.

(6) **Symphytum**. For gastric and duodenal ulcers.

(7) **Atropine**. For cardialgic pain of gastric ulcer. It gives relief.

(8) **Phosphorus**. Useful in vomiting as soon as food or liquids become warm in the stomach. Vomiting of food with mucous, bile and blood.

(9) **Carbo. Veg.** Sour vomiting with bloody masses, and burning in stomach.

(10) **Nitric Acid**. To arrest the tendency of formations.

CARCINOMA OF THE STOMACH

(Gastric Cancer)

Definition :

Gastric cancer is a malignant growth of the tissues in stomach characterised by pain, vomiting, loss of appetite and weakness in its advanced stage. The cancer of stomach kills more people than cancer in any other part of the body.

Etiology :

(1) Constitutional factors play some part, as there is an association between blood group A and carcinoma of the body of the stomach.

(2) Occasionally patients have strong family history.

(3) In some cases environmental factors play a great part.

(4) The gastric atrophy of pernicious anaemia predisposes to gastric cancer as does atrophic gastritis which may account for the high mortality in patients with a benign gastric ulcer.

(5) Half of the carcinomas occur at the pyloric end of the stomach.

(6) Rarely there is a superficial invasive carcinoma which involves only the mucosa.

Clinical features :

(1) In the early stage, the disease may be generally silent or have mild symptoms.

(2) Typically the symptoms are anorexia, epigastric discomfort or fulness after meals, loss of energy and loss of weight.

(3) The pain may become boring and pass through to the back.

(4) This may be accompanied by massive gastro-intestinal haemorrhage, and may present symptoms of anaemia due to loss of blood.

(5) Dysphagia may be present.

(6) Growths in the pylorus, may produce pyloric obstruction with nausea and vomiting.

(7) Diarrhoea may be prominent.

(8) The first symptom may be acute perforation.

(9) Once the cancer spreads, other signs and symptoms of enlarged liver, malignant ascites, lymphatic infiltration of the lungs or enlargement of the ovaries occur.

Complications :

(1) Gastric perforation and localised formation of abscesses.

(2) Septic pneumonia, and

(3) thrombosis are all possible consequences of this disease.

Prognosis :

This depends on the type and location of the cancer and upon the resistance of the patient. Certain types being malignant, a tumour at or near pylorus is generally obstructive. Other tumours, high up in the middle, are more favourable. The resistance also is helpful in so far as it is capable of destroying certain cancer cells. Carcinoma is said to progress rapidly in the young and slowly in the aged. Cure, however, is a remote possibility.

Treatment :

(1) **Arsenicum.** Burning and lancinating pains in stomach ; weakness and debility better from warm applications ; vomiting of all intakes, brown-black in colour ; restlessness

(2) **Carbo Veg.** Burning pain extending from pit of stomach into small of back ; anxiety ; cold extremities ; cold sticky sweat ; intermitting pulse.

(3) **Carbo. Animalis.** Scirrhus cancers as hard as stone ; saltish water rises from stomach and runs out of the mouth, belching and violent empty eructations ; cold feet and hiccough ; pressure, clawing, burning in stomach ; scanty hard stools in lumps ; Copper-coloured eruption on the face.

(4) **Conium.** Beginning of a scirrhus cancer with flying stitches, worse at night ; vomiting of chocolate-coloured masses, sour and acidic ; pressing, burning, squeezing pain, extending from pit of stomach into back and shoulder.

(5) **Kreosotum.** Painful hard spot on the left side of stomach.

(6) **Condurango.** Open cancers and cancerous ulcers particularly the ulcer of stomach. It relieves pain considerably. (6X potency to be used.)

(7) **Hydrastis.** Malignant ulcers of stomach have disappeared under the continued use of this remedy ; worn, jaded look, shallow complexion, hide-bound state of skin, low spirits ; loss of appetite ; constipation.

(8) **Ornithogalum.** Useful in chronic gastric indurations.

(9) **Phosphorus.** Fungoid and bleeding growths ; in the sunken abdomen a circumscribed hard swelling ; pale earthy complexion, great emaciation ; sleepiness, peevishness ; fine gurgling noise in abdomen, urine scanty, red or brown with reddish or yellowish-red sediment ; constant nausea and vomiting of sour, foul smelling fluid after eating or drinking.

HYPERTROPHY AND DILATATION OF STOMACH

Definition :

Hypertrophy consists in an increase in the mass of the muscles of the stomach, the walls of which are thickened, and the inner cavity becomes narrow. *In dilatation of stomach*, the walls of the stomach become thinner and the inner cavity becomes widened, as in chronic gastritis, in general debility, or downward displacement of stomach.

Etiology :

Acute dilatation is generally observed, as a result of post-operative, or post child-birth complications on account of the application of anaesthesia, which depresses gastric tone. Occasionally, bacterial fever, as in pneumonia, causes this dilatation of stomach. In chronic cases, both hypertrophy and dilatation are complications of other diseases.

Symptoms and Signs :

- (1) Vomiting of dark-brown or black liquid with a foul smell.
- (2) Considerable distention of abdomen.
- (3) Collapse with cold clammy skin.
- (4) Pinched and anxious face.
- (5) Rapid pulse.
- (6) The distended stomach has a large quantity of fluid.

Differential Diagnosis :

One has to differentiate this from acute peritonitis and intestinal obstruction. In this particular affection, there is no fever, and the vomit does not contain faeces.

Prognosis :

This is rather serious and unfavourable, if not attended to in the early condition of the disease.

Treatment :

(1) *General* : Diet should be light and nutritious.

(2) A small quantity of food should be given at a time and often.

(3) Liquid diet should be avoided.

Curative :

(1) **Hydrastis Mur.** A specific and a very good remedy for the acute dilatation of stomach.

(2) **Nux Vomica.** Dilatation due to alcoholic drinking ; epigastrium bloated with pressure, as of stone ; sensitive to pressure.

(3) **Xanthorrhiza.** Dilatation of stomach and intestines ; atony condition ; enlarged spleen.

(4) **Phosphorus.** Dilatation of stomach ; post-operative : vomiting of water, as soon as it gets warm in stomach ; pain in stomach relieved by cold food and ice.

(5) **Bismuth.** Dilatation, due to gastritis ; better from cold drinks, but vomits when stomach becomes full.

PYLORIC OBSTRUCTION**Definition :**

Pylorus is the opening of stomach into duodenum, encircled by a sphincter muscle. Its obstruction is a narrowing of this opening, due to hypertrophy of the pyloric muscle by spasm, or inflammation in gastritis or gastro-duodenal ulcer.

Etiology :

(1) Pyloric obstruction is due to gastric retention in the region of pylorus on account of the presence of gastric or duodenal ulcer, as the retention of gastric secretion produces constriction at the pyloric end.

- (2) A lone carcinoma is occasionally the cause.
- (3) The obstruction may be due to actual organ narrowing from scar tissue or to oedema and spasm produced by the ulcer.
- (4) In infants, a condition of congenital hypertrophic stenosis occurs.
- (5) In adults also, a condition of hypertrophic pyloric stenosis occurs in association with some acquired diseases.

The obstruction is loosely described as "pyloric stenosis".

Clinical features :

- (1) The cardinal symptom is vomiting of large amounts of indigested food, free of bile.
- (2) Occasionally there is foul gaseous eructation and the vomitus is offensive.
- (3) Pain, when present, is cramp-like or may be an epigastric fulness and distention which is eased by vomiting.
- (4) Anorexia occurs with weight loss.
- (5) Constipation is common.
- (6) 25% patients have diarrhoea.
- (7) There is weakness and lethargy due to dehydration or tetany.
- (8) The main sign is a gastric succussion splash.
- (9) The X-ray will decide the nature of the obstructing lesion.

Diagnosis :

Blood examination shows considerable rise of blood urea and chloride loss. X-ray will show dilatation of stomach.

Complications :

Frequent vomiting causes loss of hydrochloric acid and sometimes convulsive spasm may result.

Treatment :

1. **Cannabis Indica.** Pylorus constriction due to spasm.

2. **Nux Vom.** A remedy for active, nervous and irritable patients and those who are used to purgatives, excessive drinking, rich spicy food, and gastric disturbances thereby.

3. **Phosphorus.** Pylorus or cardiac constriction ; pain in stomach extending to throat.

4. **Ornithog.** Pylorus obstruction due to cancerous growth.

(ii) *Disorders of the gastric tract*

Dyspepsia

Generally disturbances of gastro-intestinal function may be caused by organic disease, but similar symptoms may be present, when there is no apparent disease. In such cases, there may or may not be obvious psychogenic factors. Thus the problem is not only to exclude organic disease and to make a positive psychiatric assessment, but also to assess whether the symptoms complained of by the patient can be explained by any organic anomaly.

Etiology :

Every practitioner encounters daily patients with symptoms such as, abdominal pain or discomfort, distention, flatulence, nausea, vomiting, heartburn, where there does not appear to be any evidence of gross organic disease in the stomach or duodenum.

In a proportion of such cases, the gastric symptoms may be shown to be secondary to local disease elsewhere in the abdomen. In others the failure of digestion appears to be the result of defective nervous control of the secretory peristaltic functions and the symptoms are termed nervous dyspepsia.

Digestive disturbance results from faulty habits, chief among these are

- (a) irregular and hastily swallowed meals.
- (b) Physical exercise, too soon, after meals.
- (c) Over-eating or too long intervals without a meal.

Symptoms :

The symptom complained of are mostly discomfort, fulness in the epigastrium after a meal, loss of appetite. There is probably a

resultant gastritis and other forms of indigestion. Other symptoms may be acidity, heartburn, flatulence, waterbrash, and vomiting.

Treatment : (Dyspepsia)

- General* : 1. Regularisation of diet and living habits is essential.
2. Proper chewing of food.
 3. The diet must be nutritious and digestible.
 4. Too much fat and spices in diet should be avoided.

Curative :

1. **Abies Nigra**. Chronic dyspepsia with pain immediately after eating. The patient is low-spirited and despondent. There is hard boiled-egg sensation in the stomach.

2. **Anacardium**. Nervous dyspepsia with a constant desire to eat as it relieves the hunger-pain, but which soon returns after a couple of hours. Constipation with constant urging to stool, but the desire passes off on going to stool. Loss of memory, and hypochondriasis.

3. **Antimonium Crud**. Atonic gastric catarrh with thickly-coated tongue as a result of overloading the stomach, resulting in eructations, tasting of food and vomiting.

4. **Argentum Nitricum**. Nervous dyspepsia with violent, loud and enormous belching that provides relief; gnawing pain in the pit of stomach radiating in all directions, the food making the pain, which is caused by emotion, sleeplessness or menses; feeling of a lump in the stomach; vomiting of glairy mucous; longing for sweets, but this produces diarrhoea; everything that the patient eats seems to turn into gas; suitable for patient with gastric ulcer (in higher potency).

5. **Arnica**. Atonic dyspepsia with fulness and painful contractions after eating, or when the disorder has been caused by a blow on the stomach.

6. **Arsenicum**. Dyspepsia caused by vinegar, acids, ice-cream, ice-water and tobacco; ill-effects of watery fruits and vegetable diet;

the pains are of a burning character attended with nausea and vomiting ; the stomach is sore and sensitive, and the patient prostrated. It suits a dyspepsia in which there is inflammation of the membrane (Gastritis).

7. **Bismuth.** Atonic and acid dyspepsia with symptoms of burning and lancinating pains with spasmodic vomiting of fluids, as soon as they strike the walls of the stomach. It suits cases of pure gastralgia.

8. **Bryonia.** Atonic and acid dyspepsia of irritable persons who mostly suffer attacks in summer ; pressure after eating as of a stone, the sensation disappearing with eructations, which are putrid or sour after a meal ; nausea and faintness on rising, followed by vomiting soon after ; thirst for large quantities of water with dryness of lips and tongue, which is coated white or gray ; constipation with large hard and dry stools, as if burnt.

9 **Capsicum.** Atonic dyspepsia with relaxed mucous membrane, much flatulence and cold stomach.

10. **Carbo Veg.** Atonic dyspepsia with slow digestion in which food putrifies in the stomach before it is digested (putrid variety), a faint gone-feeling in the stomach, not relieved by eating ; few mouthfuls fill the stomach ; burning in the stomach extending to back and spine, excessive flatulence, more in the stomach than in the bowels, relieved by belching, which is rancid, sour or putrid ; coffee and milk disagree. The patient is worse by eating fish, ice-cream, vinegar and cabbage.

11. **Causticum.** Acid dyspepsia with a sensation of ball rising in the throat, greasy taste ; aversion to sweets, worse after eating meat ; feels, as if lime was burning in the stomach.

12. **China off.** Useful after loss of vital fluids with a slow, weak digestion, weakness, and prostration with a desire to lie down after meals. Distention is painful and is relieved temporarily by belching. Abnormal hunger, but a few mouthfuls satisfy. The food lies in the stomach for a long time and causes bitter and sour eructations and offensive wind. The food may be vomited, as it remains undigested.

13. **Colchicum.** Has nausea even at the mere thought of food. Pain in stomach and flatulence, thirst and vomiting.

14. **Graphites.** There is no distention either of stomach or abdomen, burning cramps in the epigastrium and putrid eructations. It has aversion to meat, chilliness, burning, crampy and colicky pains, relieved by eating. Sweets nauseate; hot drinks disagree and there is rush of blood to the head after eating. This remedy, if alternated with *Nux Vom* is likely to cure all kinds of dyspepsia. *Nux* one hour before meals and *Graphites* one hour after meals should be given in the 12th potency.

15. **Hepar Sulph.** Atonic dyspepsia with a longing for sour food and condiments, frequent but momentary attacks of nausea, attended with a flow of saliva in the mouth. The plainest food disagrees with the patient.

15. **Hydrastis.** Atonic dyspepsia with loss of appetite, dull epigastric aching, worse after eating, clean tongue at sides and tip, but a yellow coating down the centre, depression of spirits, obstinate constipation with stool covered with mucous, liver involved, sour eructations.

17. **Ignatia.** Nervous dyspepsia, chiefly in hysterical subjects with sour eructations, nausea, vomiting (hunger and vomiting may exist at the same time). The pain comes in stomach after eating or at night, worse from pressure or motion, excessive flatulence.

18. **Ipecac.** Atonic dyspepsia, weak stomach with loathing of food, of tobacco, easy or violent vomiting containing mucous, especially when accompanied by diarrhoea. The tongue is not coated.

19. **Kali Bich.** Dyspepsia of beer drinkers is often indicated by the sensation, as if digestion had stopped after a meal had been eaten with relish, and the food lies in the stomach like a load. There is nausea and vomiting after beer. The stomach is dilated. Tongue has a thick yellow coating.

20. **Kali Carb.** Atonic and acid dyspepsia of persons whose system is broken down by loss of fluids or protracted illness with acidity (sour eructations), heartburn and bloating. Before eating,

there is a sinking feeling in pit of stomach out of proportion to the hunger and a peculiar nervous sensation. The patient is sleepy while eating. After eating there is undue flatulence and a feeling that the stomach is full of water. Belching is putrid, but gives relief. All the stomach symptoms are aggravated by soup or coffee. Desire for sugar and sweets is there.

21. **Kali Phos.** Nervous dyspepsia with great nervous depression, weakness and exhaustion. There is hunger immediately after eating.

22. **Lycopodium.** Atonic and acid forms of dyspepsia with distress in stomach immediately upon eating a few morsels. The digestion is slow and difficult, and the patient is unconquerably sleepy after eating. There is accumulation of flatus more in the intestines than in the stomach with pressure upwards, causing difficulty in breathing. There are sour eructations, which do not relieve; also constipation, with ineffectual urging to stool, from contraction of sphincter. Urine loaded with urates and desire for sweets.

23. **Nux Moschata.** The abdominal disturbances commence immediately after eating. The abdomen is excessively bloated and is attended with hiccough with a craving for highly-seasoned food.

24. **Nux Vom.** Dyspepsia caused by mental overwork, sedentary habits, high living and dissipation; frontal headache is almost constant; gastric troubles begin half an hour or so after meals; Often there is nausea, some sour or bilious vomiting, water-brash, sour, bitter metallic or putrid taste and vertigo with morning and after-dinner aggravation. The eructations are painful, bitter, or sour, abnormal thirst, sensation of a lump or load in stomach after eating.

25. **Nat Mur.** Suitable for chronic cases of atonic dyspepsia in hypochondriacal patients with great hunger, but no appetite, pressure and distention of stomach, heartburn after eating, great longing for salt, aversion to bread and vomiting of clear mucous.

26. **Phosphorus.** Atonic and acid forms of dyspepsia with a weak, gone-feeling in the stomach at 11 a.m. which extends to the bowels and characteristic burning between the scapulae. The tongue

is white, more along the middle. The patient is hungry at night and remains awake till he eats. The patient vomits as soon as the food touches the stomach, and there is much pain and burning which is relieved by drinking cold water that is vomited out as soon as it becomes warm in the stomach.

27. **Pulsatilla.** Atonic and acid forms of dyspepsia with acidity, heartburn more than waterbrash, and taste bitter, sour or putrid, eructations tasting of food, and absence of thirst, but a desire to moisten the mouth. Distention or weight in stomach an hour or two after meals, which is relieved by eating is present. The wind moves about and often gives pain near about the chest, which is relieved by eructations or by passing flatus. It is especially useful for dyspepsia arising from fatty foods or by chilling the stomach with ice-cream or ice-water. The patient is always chilly and worse from heat and better in the open air.

28. **Robinia.** Acid forms of dyspepsia with hyperacidity and sour vomiting. There is burning in epigastrium with frontal headache, when stomach is empty. Frequent acid eructations and colic, which make the patient double-up, are prominent symptoms.

29. **Sepia.** Chronic cases having anger, vehemence, irritability, indifference, sadness and a weeping disposition. It has the symptoms of hot hands and cold feet and a likely yellow saddle across the nose. There is white-coated tongue and a putrid and sour taste in the mouth. The most important symptom is a feeling of goneness in the stomach, not relieved by eating, with nausea at the smell or sight of food. The abdomen is flatulent and the liver is sore with sharp pains which are relieved by lying on the right side. The Sepia patient longs for acids and pickles and is worse in the forenoon and evening. This is suitable for the illeffects of tobacco.

30. **Sulphur.** Chronic cases that have a tendency to relapse with the following symptoms: bitter and sour taste, putrid eructations, sour vomiting, congested liver, constipation, dyspepsia of drunkards, aggravated by starchy foods, desire for sweets which make the patient sick, causing a sore stomach and heartburn, appetite at night, hot flushes, hot head and cold feet, early morning diarrhoea, cat-nap sleep.

31. **Sulphuric Acid.** Acid dyspepsia, sour eructations and vomiting, heartburn, sets teeth on edge like **Robinia** ; relaxed feeling in stomach.

GASTRO-ENTERITIS

(Epidemic diarrhoea, summer diarrhoea or acute entero-colitis)

Definition :

Gastro-enteritis is not a single disease but a complex of symptoms, caused by a variety of agents. It may be due to intestinal pathogens or secondary to parenteral infection. Summer diarrhoea used to occur in epidemic proportions. It is a disease of infants only due to contamination of milk and unclean feeding bottles.

Etiology :

(1) The common organisms causing gastro-enteritis are Esch. Coli, Salmonella, S. enteritidis, choleraesuis. It has been established that certain types of Esch. coli are responsible in gastro-enteritis and may be responsible for nursery epidemics.

(2) These epidemics may be of varying degree of severity. Some may be fatal and some may have low-grade fever and vomiting and may not need treatment.

(3) The incubation period is from 2 to 10 days.

(4) The transmission is principally by faecal contamination from the infected infant.

(5) Within 4 days of becoming infected, there is a sudden onset of abdominal pain, fever and vomiting.

(6) In infants, it may cause rapid and life-threatening dehydration.

(7) Salmonella of the food poisoning type cause gastro-enteritis particularly in children between 6 months and 2 years. The organism may be present in water, eggs, milk, and occasionally in pharmaceutical products.

(8) Staphylococcal gastro-enteritis may occur as an epidemic with an abrupt onset 3-4 hours after eating uncooked foods containing the toxin.

Clinical features :

(1) Diarrhoea may occur in an infant who is already ill with an upper respiratory infection.

(2) More often, there is a rapid onset of fever, vomiting and abnormal distention.

(3) In early stage, the baby may not have marked diarrhoea, but it feels colicky and abdominal pain.

(4) The motion may be green with bile and excess mucous or they may consist of profuse partially digested material which is acid in character.

(5) Two factors influence the course of illness, the passage of toxin and bacteria into the blood. As the diarrhoea increases, dehydration becomes marked and may lead to circulatory failure.

(6) The baby appears restless with a grey appearance, the mouth is dry and the fontanella is depressed.

(7) The skin is inelastic and eyes appear sunken.

(8) Later there may be convulsions, and stupor is sometimes associated with rapid respiration.

(9) There is oliguria with the presence of albumin and casts.

Treatment :

Diet. Avoid acids, fermented drinks, highly-seasoned food and most of the vegetables. The use of curd is recommended.

Curative :

(1) **Arsenicum.** Diarrhoea due to chilling of stomach by cold food, ice-water or ice-cream ; tainted or putrid food, or ptomaine poisoning. Character of stools is dark-yellow, undigested, slimy, bloody, or dark-green and offensive, in small quantity, worse at night and after eating or drinking ; great prostration.

(2) **Aloes.** Lumpy, watery stools with great deal of flatus and a feeling of insecurity of rectum ; intense griping across the lower part of the abdomen before, during, but never after stools ; extreme weakness, and perspiration follows discharge.

(3) **Argentum Nitricum.** Diarrhoea brought on by mental excitement or emotional excitement ; green, slimy and bloody stools like chopped spinach.

(4) **Aconite.** Green stools like spinach. (*Calc. Phos.* has a diarrhoea with much flatus and spluttering.)

(5) **Gelsemium.** Diarrhoea produced by fright or fear : yellow and changeable stools.

(6) **Pulsatilla.** Is also indicated in fright, but stools are greenish-yellow and changeable.

(7) **Dulcamara.** Diarrhoea from sudden change of weather from warm to cold.

(8) **Calcarea Carb.** One of the best remedies for sour and undigested stools, particularly children during dentition and gastric troubles.

(9) **Podophyllum.** Early morning stools ; watery, pasty, yellow or undigested, forcibly expelled ; painless ; weakness in the rectum after stool, useful in the diarrhoea of dentition with cerebral symptoms.

(10) **China Off. and Ferrum.** Are excellent remedies for undigested stools, which are with or without pain, (watery, and yellow in the case of China), but have an offensive smell followed by exhaustion and emaciation. The stools are worse at night and after eating.

(11) **Phosphoric Acid** is indicated, when there is rumbling in the abdomen with perspiration on the body, much thirst, and involuntary stools.

(12) **China.** Diarrhoea may also be caused by fruit and is worse after eating.

(13) **Croton Tig.** Yellow stools ; rushing out with force ; aggravation from drink and food ; commonly accompanied with nausea, preceded by a little pain.

(14) **Gambogia.** Stools with a gush, but expelled all at once, with much relief.

(15) **Jatropha.** Gushing stools, profuse, accompanied with wind and flatulence and great prostration.

(16) **Gratiola.** Sudden gushing diarrhoea, yellowish-green, associated with a cold feeling in stomach.

(17) **Elaterium.** Frothy, copious, forcible, gushing diarrhoea, Preceded by a cutting pain in abdomen ; chilliness, prostration and colic.

(18) **Rheum.** Sourness of stools with griping colic, followed by straining and pain ; stools are brown and frothy, worse from motion and after eating. All the stools of Rheum may not be sour.

(19) **Sulphur.** Awakens the patient in the morning, who hurries to the toilet, worse from eating, but seldom occurs during the day ; diarrhoea mostly of scrofulous and rickety children and may be blood-streaked.

(20) **Veratrum Album.** Profuse stools with pain preceding stools ; great thirst for large quantities of cold water ; great weakness after stool, but this is not compatible with the profuseness of the stool ; no restlessness, but there is sweat on the body. Rice-water discharges are forcibly evacuated along with nausea and vomiting occasionally. Cramps in legs and feet may be present.

(21) **Ipecac.** Persistent nausea ; vomiting of mucous and bile or food and drink ; fermented, green stools, clean tongue, disgust of food and extreme thirst.

(22) **Bryonia.** Diarrhoea from hot weather, in the morning as soon as one begins to move.

(23) **Ars. alb** may be given to cases arising from food-poisoning with vomiting or diarrhoea or both.

(iii) Disorders of "Intestinal tract"

(Acute Diarrhoea)

Definition :

Diarrhoea signifies evacuation of watery or unformed stools accompanied with colic and vomiting occasionally. In its acute form, this affection is similar to catarrhal inflammation of all mucous membranes, characterised by congestion, swelling and infiltration of the sub-mucous tissues.

Etiology :

Primarily it may be caused by overloading the stomach with food, by taking decomposed, undigestible or irritating food, using purgatives, taking cold, or by mental emotions or a specific bowel infection, as a sequel to acute attack of influenza or bacillary dysentery, colitis, or sudden nerve strain and other complaints.

Clinical features :

The severity of stools varies according to the severity of the case. The evacuations are usually preceded by sharp cutting pains in the abdomen, which usually subside after evacuation. Severe cases are attended with fever, headache, delirium, want of appetite, sickness of stomach and thickly-coated tongue. If inflammation is confined to the small intestine, constipation may be present, but usually diarrhoea varies from semi-solid discharges to watery, acrid, undigested, slimy and even bloody evacuations.

CHOLERA**Definition :**

Cholera which is an acute, often fatal, self-limited disease of the gastro-intestinal tract, is caused by infection with one of the several strains of *vibrio cholerae*.

Etiology :

(1) Cholera is caused by the contamination of food or drink by strains of *vibrio cholerae*.

(2) There are different strains, named Inaba, Ogawa, Hikojima and also vibrio EL TOR which since 1961 had become widespread and appears to be displacing the classical *V. cholerae* from some area

(3) These disease-producing strains have to be distinguished from the non-pathogenic cholera-like vibrios.

(4) The most important endemic foci of cholera are in the lower reaches of the Ganges and Brahmaputra rivers, and epidemics are likely in hot season.

(5) Cholera *Vibrio* usually disappear from the stools of patients within a week of convalescence, but in exceptional cases, the period is up to a month after the acute attack, and *V. EL TOR* may continue for as long as three years.

(6) There are no chronic carriers. The disease appears to be maintained in endemic areas by very mild infection in a population with considerable resistance to it.

Symptomatology :

(1) After an incubation period of a few hours to 5 days, severe diarrhoea without pain or colic followed by vomiting usually begins suddenly.

(2) This is characteristically effortless, the fluid gushing from the bowel and from the stomach.

(3) After the faecal material has been evacuated from the gut, the typical rice-water diarrhoea sets in. It consists of flakes of mucous floating in water.

(4) This leads to intense dehydration with agonising muscular cramps.

(5) This soon passes into "algid stage" with a low surface temperature.

(6) Cardiovascular collapse and prostration then accompany a low blood pressure and a weak pulse.

(7) The urine output is very scanty or absent.

(8) The body surface is cold and clammy, the eyes are sunken and the skin is inelastic.

(9) If the stage of recovery returns, the patient may develop hyper-pyrexia or if the fluid has not been replaced in time complete suppression of urine may lead to death from uraemia.

Although this is the typical picture of cholera, other rare types of the disease may be encountered varying from a mild illness with slight diarrhoea (ambulant cholera) to a very intense illness (cholera sicca) in which the patient is over-whelmed by the infection and there is rapid loss of fluid into the dilated bowel and dies before typical gastro-intestinal symptoms appear.

Complications :

The complications are :

- (i) Acute circulatory failure.
- (ii) Uraemia.
- (iii) Pulmonary oedema due to left ventricle failure.
- (iv) Bronchitis and broncho-pneumonia.
- (v) Enteritis and entro-colitis.
- (vi) Hiccough.
- (vii) Parotitis.
- (viii) Cholecystitis and
- (ix) Abortion.

Prognosis :

This is dependent on consideration of age, constitution, pre-existing disease, pregnancy and complications. The mortality varies from 20 to 50 per cent. Prompt homoeopathic treatment, if given in early stages, reduces mortality to a bare minimum.

Differential Diagnosis :

Cholera can be distinguished from :

- (i) food and
- (ii) Arsenic poisoning by the following signs :

<i>Cholera</i>	<i>Food Poisoning</i>	<i>Arsenic Poisoning</i>
1. Incubation period 24-72 hrs.	Incubation period 4-24 hrs.	Incubation period 4-24 hrs.
2. Onset with purging.	Onset with vomiting	Onset with burning throat, followed by vomiting.
3. Nausea and Retching is not there	Nausea and retching is there	Retching is more marked
4. Continuous vomit- ing, watery ; rarely blood.	Often a severe single vomit, blood- streaked.	Violent continuous, mucous, often bloodstreaked.
5. Continuous watery discharges which are inoffensive.	Frequent purging of faeces plus blood, mucous, often offensive, followed by vomiting.	Single massive de- layed purging with blood, and mucous.
6. No tenesmus.	Tenesmus to some extent.	Very marked tenesmus.
7. No abdominal ten- derness	Marked abdominal tenderness	Very marked ab- dominal tenderness
8. Very marked dehy- dration	Distinct dehydra- tion.	Slight dehydration
9. Constant and severe muscular cramps.	Cramps in extre- mities only which are less constant.	severe muscular cramps.
10. Sub-normal tempe- rature	Often up to 101- 102°F.	Normal or sub- normal temperature.
11. No headache.	Often headache.	Often headache.
12. Suppressed urine.	Urine seldom suppressed	Urine suppressed at a later stage.
13. Increase in Leucocytes.	Normal count.	Slight leucocytosis.

(ii) Cholera is distinguished from *Algid Malaria* by the following symptoms present in the latter :

- (1) history of previous attacks of fever,
- (2) Temperature is rather high,
- (3) pallor and anaemia with yellow tinge in eyes,
- (4) presence of bile in stools,
- (5) absence of marked prostration and collapse,
- (6) absence of suppression of urine,
- (7) absence of *vibrios* in stools.

Treatment :

General : (1) Rest in bed is essential.

(2) The warmth of the body should be maintained by the use of blankets and hot water bottles over the extremities.

(3) When dehydration is severe in certain cases, sodium chloride may be necessary to combat against the effects of dehydration and to retain the pulse.

(4) All food and drink should be withheld for 36 hours except small sips of boiled and cooled water, particularly 'dab' (green cocoanut juice) or pieces of cracked ice to allay thirst. As soon as vomiting and watery diarrhoea cease, barley water and rice-water with 5% glucose should be given. Gradually whey and skimmed milk are to be added. The return to normal diet should be cautious and gradual.

Prophylactics :

(1) Arsenicum.

(2) Cuprum Acetate and

(3) Verafrum Album are prophylactics to cholera. The surest way is to put half a tea-spoonful of milk of sulphur into each of your stockings.

Curative :

(1) **Aconite**. It is the most important remedy in the active stage of cholera infantum (to be given in tincture doses), provided

there is rapid collapse, unattended with copious evacuations that have greenish, or chopped, grassy stools with intense restlessness.

(2) **Argentum Nitricum.** Cholera infantum in thin, dried-up children ; slimy but noisy stools like finely-chopped spinach in children who have eaten too much sugar.

(3) **Arsenicum.** Cholera Asiatica, discharges scanty ; internal burning, but body cold ; vomiting and purging, brownish-yellow, profuse, offensive, yellow or green stools ; intense thirst ; more restlessness but less sweat than *Veratrum* ; in cholera infantum, undigested stools, restlessness and rapid emaciation.

(4) **Calcarea Carb.** Cholera infantum. The indications are : craving for eggs ; vomiting of milk in curds ; diarrhoea, worse in the evening, of undigested, green, watery, sour stools.

(5) **Camphor.** Sudden onset of cholera, dry cholera with coldness, where the patient has not got the strength to vomit or purge ; coldness, dryness and blueness are characteristics ; intense prostration, bluish, icy cold face, cold body, weak voice, muscles stiff, collapse ; burning in stomach and oesophagus ; patient relieved by warmth.

(6) **Carbo Veg.** The patient is so weak that he is not reacting to any of the symptoms and lying quietly and cannot even move ; cold body, rapid pulse and cold breath ; during vomiting, diarrhoea and pain cease ; lips blue.

(7) **Cuprum.** Intense spasm and cramps are the characteristics of this remedy ; coldness of body and dryness of mouth, thirst, blueness of skin, prominent cramps in calves, violent pains in epigastrium ; ineffectual efforts to vomit ; vomiting and purging are profuse, but there is no cold sweat to differentiate it from *Ver. Alb.*

(8) **Podophyllum.** *Cholera Morbus.* Painless watery stools, coming out with a gush ; loathing of food ; sometimes undigested diarrhoea, worse in the morning.

(9) **Veratrum Album.** In true cholera, it should be given early. The symptoms are : stools profuse and forcible evacuations ; pain in abdomen preceding stool ; great prostration following stool ; internal

burning and cold sweat on the forehead ; blue skin ; the veratrum patient must have pains. He may faint with the passing of a stool, which is rice-watery ; green stools, which are accompanied by vomiting and cramps, contain flakes like spinach and are worse at night.

(10) **Sulphur** of use in the beginning when you have diarrhoea, especially during epidemics. Dissolve a few globules of Sulphur 6 in a tumblerful of water and give a spoonful after every evacuation ; follow this treatment, even if diarrhoea is accompanied with vomiting and cramps in the calves of legs. Other remedies are :

- (1) Jatropha.
- (2) Hydrocyanic Acid.
- (3) Secale.
- (4) Iris. V.
- (5) Elaterium.
- (6) Acid Phos.

CROHN'S DISEASE

(Regional ileitis or enteritis)

Definition :

This is a chronic non-specific transmural inflammatory disease of the bowel typically affecting the terminal ileum and caecum but capable of attacking any part of the alimentary tract from mouth to anus.

Etiology :

- (1) The etiology is unknown. No infective agent has been isolated.
- (2) There is slight familial tendency.
- (3) There is little evidence of disturbed delayed hyper-sensitivity as the incidence of positive skin tests to tuberculine and *candida* do not differ from controls, but over 50% of patients have a positive Kveim test which at one time was said to be specific to Sarcoidosis.
- (4) Psycho-somatic factors are not very valid etiological factors.

Pathology :

The inflammatory reaction seems to start in the mucosa and is really transmural so that when it affects the colon it is usually quite distinct from ulcerative colitis. Stenosis of the bowel typically occurs, but is not related to ulceration. There is a tendency for fistulae to form between loops of bowels or between bowel and other organs, such as the bladder or the vagina. Lymph nodes are often enlarged and inflamed.

Clinical features :

(1) The clinical picture is protean (**variable**) and the precise features will depend upon the site, extent and activity of the lesion.

(2) The history is that of chronic abdominal symptoms of pain, diarrhoea, ill-health, weight loss and often fever.

(3) A significant proportion of patients have symptoms like those of appendicitis or appendix abscess.

(4) Spasmodic pain may follow with bowel action or after a meal or when there is an intestinal obstruction.

(5) In other cases pain may be ill-defined or be constantly present in the right iliac fossae.

(6) Diarrhoea of varying intensity is frequent.

(7) The stool is usually unformed and watery and may be occasionally streaked with blood.

(8) Fistulas or fissures or both are painless and sometimes diagnosed as tuberculosis.

(9) Fever is frequently present and may be due to a secondary abscess, or due to gynaecological complications in ovaries etc. in the form of an abscess or amenorrhoea.

(10) Ill-health due to depressed appetite or pain after food may be there.

(11) The commonest nutritional disturbances are weight loss, anaemia, hypo-proteinaemia.

(12) Mild B 12 and iron deficiency quite frequently occurs.

(13) Depletion of water and electrolytes may occur, when there is severe diarrhoea.

(14) Carcinoma is a rare complication.

(15) It is probable that both biliary and renal calculi may occur more frequently.

Diagnosis :

The small bowel disease is often diagnosed as appendix abscess or recurrent appendicitis and differentiation from Hypoplastic Tuberculosis is impossible.

The presence of fever, arthralgia, and even erythema nodosum may dominate the picture so that the diagnosis of a collagen disease may have to be considered before the small bowel disease.

One of the sheet-anchors of diagnosis is the barium follow through examination. Besides, rectal biopsy findings, may be diagnostic. The differentiation of Crohn's disease of the large bowel from *ulcerative colitis* depends upon the relative sparing of the rectum, deeper ulceration of the colon, asymmetrical and discontinuous lesions and the greater tendency for stricture formation.

Clinical feature :

(1) The points differentiating this disease from others are the presence of pus cells in faeces.

(2) irregular fever with colic and diarrhoea.

(3) a tender fixed mass in the lower abdomen.

Prognosis :

The disease limited to a small area proves favourable and does not shorten life. Several tumours and fistulae make the expectation of life gloomy.

Treatment :

General : Diet should be semi-solid and of good nutritive value. It should not consist of roughage and leafy vegetables.

Curative :

Refer to acute diarrhoea, abscess formation. In advanced cases operation is the only cure.

TROPICAL SPRUE

Definition :

Sprue is a primary intestinal malabsorption syndrome, clinically characterised by steatorrhoea, glossitis and stomatitis, dyspepsia and abdominal distention and rapid weight loss, occurring in individuals who inhabit or have lived in certain tropical areas. The picture is subject to frequent remissions and to relapses. The cause is unknown.

Etiology :

- (1) Classical sprue is a disease of middle life.
- (2) The patient is either living in a sprue area and has lived there for some time.
- (3) The clinical picture may develop months or years after the patient has left the tropics for temperate climate.
- (4) The primary physiological disturbance in sprue is defective absorption in the small intestine involving especially fats and certain carbohydrates.
- (5) The cause of the mal-absorption has not been ascertained.
- (6) There is a general agreement that it is not infective or primarily derived from the deficiencies in essential substances which accompany it.
- (7) These deficiencies are secondary and some of them are believed to arise from failure of bio-synthesis, following invasion of the small intestine by bacteria derived from the large intestine.
- (8) The megaloblastic anaemia which is often a striking feature of the clinical picture in certain areas is also secondary.
- (9) The absorption of fat and glucose is defective, the more saturated fatty acids are less well-absorbed and cause intestinal irritations.
- (10) Insoluble soaps are formed with calcium and excreted, leading to loss of the element.
- (11) Absorption of glucose is defective and delayed.

(12) Other sugars, such as, fructose and xylose are absorbed normally, suggesting that there may be some fault in phosphorylation.

(13) Bacterial action on the unabsorbed foods results in flatulence and distention and the passage of bulky gaseous stools containing excess fats.

Signs and Symptoms :

1. The onset is usually gradual.
2. The presenting symptoms are nearly always gastro-intestinal, varying from diarrhoea to the full picture described below.
3. Occasionally the anaemia may be a dominant factor.
4. There is commonly an early period of watery diarrhoea with urgent, pale, frothy and offensive stools discharged most frequently in the early part of the day and not so much at night.
5. Remissions of varying duration occur interspersed with lengthy attacks of diarrhoea or looseness, chiefly in the morning on awakening.
6. The motion is discharged explosively with large volumes of gas.
7. The sprue stool is characteristically bulky and soft or porridgy, full of tiny bubbles, greasy, light-brown or grey in colour and extremely offensive.
8. Its passage occurs without pain but is often preceded by abdominal colic.
9. Dyspepsia occurs early and is severe and progressive.
10. There is uncomfortable flatulence especially after meals.
11. In advanced cases, the abdominal wall is thin and the peristaltic movements of the distended intestines are clearly visible.
12. The appetite varies considerably.
13. In some cases anorexia is persistent and the patient becomes highly selective in his diet, avoiding fats.

14. Changes in the tongue and mouth usually follow after diarrhoea is pronounced in well-developed cases.

15. The tongue is clean and patchily inflamed with red raw-areas.

16. Small vesicles and ulcers develop in the tongue and buccal mucus membrane, sometimes they are associated with excessive salivation.

17. Dyspepsia and stomatitis are common.

18. As the disease progresses the weight is steadily lost and the patient becomes emaciated with loss of fat and dry wrinkled skin and irregular pigmented patches on face, back and buttocks.

19. Anaemia appears in many cases and in most cases there is an element of iron deficiency.

20. The patient becomes irritable, quarrelsome and introspective.

21. When there is deficiency of calcium and magnesium or both, tetanic spasms of the hands and feet occur.

22. The final stages occur months or years after the onset with signs of protein deficiency, severe dehydration and vascular failure.

Complications :

Usually these are not common. The following, however may be mentioned :

(i) Acute diarrhoea or obstinate constipation.

(ii) Insomnia.

(iii) Pneumonia or B. Coli

(iv) Haemorrhoids.

(v) Intestinal ulceration.

(vi) Pellagrous dermatitis, due to deficiency of nicotinic acid.

Prognosis :

In early cases, the mortality is low under proper treatment. It is bad for patients over 50 years of age. Frequent relapses make an individual invalid.

Differential Diagnosis :

The points of distinction are :

1. **In Hill Diarrhoea.** Mouth lesions are absent, but it may lead to sprue.

2. **In tropical Macrocytic Anaemia** (a) The course is shorter than that of sprue.

(b) There is presence of free acid in the gastric juice.

3. **In pellagra.** (a) The tongue is more red, firm and pointed than in sprue.

(b) Dark offensive stools are neither bulky, nor fatty as in sprue.

(c) Presence of characteristic skin symptoms, tremors and weakness of legs.

4. **In Chronic Pancreatitis.** There is (a) absence of mouth and tongue lesions.

(b) Sugar in urine.

(c) Stool is loaded with neutral fat.

(d) Localised tenderness in epigastrium.

5. **In Chronic Bacillary Dysentery.** There are frequent or occasional attacks of diarrhoea, associated with griping and tenesmus with mucous, pus and little or no blood and presence of emaciation and anaemia ; while in sprue, there are pale, bulky, frothy motions, especially in the morning with red, glazed tongue, marked emaciation and occasional anaemia.

Treatment :

General : 1. Administration of liver juice, supplemented with high meat, or milk protein diet is necessary.

2. Mental rest should be ensured.

3. Careful nursing is important.

4. The patient must be warmly clothed and protected from exposure to cold.

5. The diet should be bland, non-irritating and should leave no residue. It should consist of high meat or milk protein with low amount of fat and carbohydrates, supplemented with adequate quantities of water soluble vitamins. The purpose may be served by giving skimmed milk, fresh orange juice, rusks, biscuits to make about 900 calories every day.

Curative : 1. *Fragaria Q.* Tongue swollen, strawberry tongue. This remedy acts on digestion and mesenteric glands.

2. **Calcarea Lactic 3X.** Anaemia when the coagulability of blood is diminished, with nervous headache. Also see *Stomatitis*, *Diarrhoea*, *Flatulence* and *Indigestion*.

DYSENTERY

Definition :

Dysentery is an inflammation of the colon and rectum, characterised by tenesmus and the passage of frequent stools containing blood and mucous. Its causes are bacterial and protozoal infections.

BACILLARY DYSENTERY

(*Shigella* infections)

Etiology :

Bacillary dysentery is caused by infection of the wall of the large gut by species of bacteria of the genus *shigella*. Such infection may lead to acute bacillary dysentery with the passage of blood and mucous or to diarrhoea or to no overt symptoms at all.

2. The acute disease is characterised by a severe *colitis* with diarrhoeal faeces, containing blood and mucous, and at some stage epithelial debris and pus.

3. Infection results from the swallowing of the organism, usually in dirty food or water which has been contaminated with human-faeces containing bacteria. Infected individuals pass enormous number of organisms in the stools, particularly during an acute attack and even after the attack has subsided. A carrier state, not unlike that of typhoid, may develop.

4. Four groups of *shigella* are recognised :

(a) *Sh. dysenteriae*,

(b) *Sh. flexneri*,

(c) *Sh. boydii*,

(d) *Sh. Sonnei*.

The most severe form is (a), which is found in hot countries. *Sh. Sonnei* is widespread and is common in temperate areas.

Symptoms and Signs :

1. The acute attack follows an incubation period of variable length which is commonly not more than 3 days but may be as long as a week or as short as a few hours.

2. The onset is sudden with gastro-intestinal discomfort, acute diarrhoea sometimes with nausea and vomiting.

3. The first motions are watery and contain some faecal material but they are soon replaced rapidly by characteristic frequent motions consisting of blood and mucous in small amounts at very frequent intervals.

4. The passage of stool is urgent with tenesmus and severe griping abdominal pain.

5. The abdomen is very tender over the area of the large bowel.

6. The number of stools passed may be 30 to 40 per day. At least they usually exceed 20.

7. Usually remittent moderate fever accompanies.

8. In untreated cases, the acute phase persists for about a week, and then gradually subsides.

9. Some cases are very severe and fulminating and death may occur in a few hours or days.

10. The most serious cases are associated with *Sh. dysenteries*, infection, in which there is toxæmia and prostration in addition to the common effects.

Diagnosis :

Clinical diagnosis in the well-established case is obvious and should be based on the frequent passage of small stools containing macroscopic blood and mucous. The appearance of a sample stool will assist the diagnosis. The causative organism can easily be cultivated from a sample stool or from the material obtained from rectal swab.

Complications :

(a) Early complication may be :

- (i) Acute circulatory failure.
- (ii) Nephrosis,
- (iii) Arthritis of toxic origin affecting the knee joint.
- (iv) acute conjunctivitis.
- (v) peritonitis and sometimes parotitis.

(b) Late Complications can be ;

- (i) Haemorrhoids,
- (ii) Arthritis,
- (iii) Eye complications
- (iv) Nephritis.

Prognosis :

This depends on the virulence of the organism, susceptibility and constitutions of the individual, early diagnosis and efficient treatment. Cases of *Shigae* infection and those associated with toxæmia, continuous high temperature, numerous stools 40-50 an hour, containing blood and mucous, accompanied with hiccough and scanty urine have a bad prognosis. In chronic cases of a severe type, progressive anaemia, and emaciation bring about death for want of strength.

Differential Diagnosis :

<i>Bacillary Dysentery</i>	<i>Amoebic Dysentery</i>
1. Common in children.	1. Less frequent in children.
2. Depressed ulcers in the lower end of ileum.	2. Deep, round ulcers with raised edges in caecum but never in ileum.
3. Stools very frequent, scanty ; mucous, viscid, non-offensive ; bright-red blood ; alkaline in reaction.	3. Less frequent faeces, bulky, offensive, dark blood and mucous ; acid in reaction.
4. Leucocytosis only in acute stage.	4. Usually leucocytosis increases with liver abscess.
5. Incubation period, a week or less.	5. Incubation period from 15 days to many months.
6. Onset is acute.	6. Onset often insidious.
7. Fever is common.	7. Fever is rare.
8. Abdominal pain and tenderness severe on the left side.	8. Pain variable and may be localised on right side.
9. Tenesmus is usually severe.	9. Tenesmus less severe and often absent.
10. Toxaemia and exhaustion periodically.	10. Exhaustion and complications periodically.
11. Complications are few	11. Peritonitis and haemorrhage, hepatitis and liver abscess are common

Treatment :

General : 1. Rest is absolutely essential in bed.

2. In chronic cases cold baths should be avoided.

3. In acute cases, the patient should have only boiled water in sufficient quantity. Glucose may be added to it in severe cases.

4. All proteins should be stopped till the convalescent stage.

(5) In Flexner infection all carbohydrates must be withheld and lime whey, or calcium whey or raw meat juice should be given.

(6) Feeds should be given warm.

(7) Skimmed milk and milk are given, when the patient has been free from symptoms for about 7 days, as indiscretion in diet may cause a relapse.

(8) In chronic cases, a non-irritating diet of high caloric value is important and should consist of a large amount of proteins, moderate amount of carbohydrates and only a small amount of fat. Boiled fish, chicken, liver soup, milk, soft rice and mashed potatoes are allowed.

AMOEBIIC DYSENTERY

(Amoebiasis)

Definition :

Amoebiasis is the condition of harbouring the protozoan *Entamoeba histolytica*.

Amoebic dysentery is a sub-acute or chronic a-febrile disease and differs from the bacillary disease which is an acute disease with sudden onset associated with pyrexia. Symptoms of amoebic dysentery may not appear for months or even years after infestation.

Etiology :

The above organism, responsible for the disease, may live for long periods in the lumen of the large intestine without invading the intestinal wall. When the invasion occurs, lesions are developed in the mucosa which may give rise to amoebic colitis. Invasion may sometimes occur with only localised lesions which do not cause overt signs or symptoms. *E. histolytica* is a parasite of man but is occasionally found in other animals. Infection is normally acquired by swallowing the cysts of the organism passed in the faeces of an infected patient and contaminating food stuffs or water. Excystation occurs in the lower part of the small intestine and the upper part of the large intestine. Each viable cyst liberates 4-nucleated amoebae

which subsequently splits into single nucleated entamoebae which may survive and multiply in the lumen or invade the intestinal wall. Under conditions, still unknown, some trophozoits of the organism form cysts which are eventually excreted in the faeces. In general, the diarrhoeic soft stools contain the entamoeba and the soft stool contains the cysts from which the trophozoits are liberated.

Symptoms and Signs :

(1) The disease usually runs a chronic course with grumbling pains in the abdomen and two or more loose stools a day.

(2) The symptoms sometimes resemble those of a duodenal ulcer.

(3) Periods of diarrhoea alternated with constipation are a frequent feature.

(4) Mucous is usually passed and the motions are often offensive in odour.

(5) On palpation there may be tenderness in abdomen along the colon, usually more marked over the region of the caecum and pelvic colon.

(6) The right iliac pain may simulate acute appendicitis, and if an operation is performed, the amoebae may cause ulceration of the wound and surrounding tissue.

(7) Perforation when it occurs is usually in the region of the caecum.

(8) Superadded pyogenic infection of the ulcers may lead to more acute bowel symptoms with very frequent motions and the passage of considerable quantity of blood and mucous and thus simulate bacillary dysentery.

(9) Bacillary and amoebic dysentery may occur together, the bacillary infection probably lighting up latent amoebiasis. But the macrophages present in bacillary dysentery may be mistaken for amoebae.

(10) Early symptoms may be local discomfort and intolerance of fatty foods, later a swinging temperature, sweating, an enlarged tender

liver and a raised diaphragm with a limited range of movement on the right side are characteristically found and symptoms may remain vague and signs minimal.

(11) The less common abscess in the left lobe may remain hidden.

(12) There is usually some increase in the total leucocytes.

Diagnosis :

As the signs and symptoms of amoebic dysentery are often vague, a careful naked-eye examination of a freshly passed motion should be made. If mucous is found, a small piece should be selected and examined under the microscope at once for amoebae.

Complications :

- (1) Hepatitis is the most common complication.
- (2) Liver abscess occurs in 2 to 3% of cases.
- (3) Lung abscess.
- (4) Peritonitis.
- (5) Appendicitis.

Prognosis :

Complications of hepatitis and liver abscess often prove fatal. In acute types, it is not unfavourable except in fulminating and gangrenous types, where toxæmia and peritonitis cause death. In many cases, however, the infection runs a very chronic course for months and years, and makes the patients invalid.

Treatment :

- General :*
- (1) Rest in bed is necessary, till all symptoms disappear.
 - (2) Avoid chill and exposure.
 - (3) All solid food should be withheld.
 - (4) Light fluid diet should be taken, such as, milk and barley, milk and sago, thin barley water, lime whey.
 - (5) During convalescence, bread, eggs, fish, chicken, soft rice, may be gradually added.

(6) Starchy foods, such as, potatoes, bread and pastries, fats and irritating foods and alcohol should be avoided.

(7) In chronic dysentery, fruits, such as ripe bananas, apples, ripe bels, or papaya are useful. In cases of constipation, however, bananas and apples are to be avoided. In case of diarrhoea, the pulp of baked bel, sweetened with sugar, should be taken in the morning.

Curative (Bacillary and Amoebic) :

(1) **Aconite.** A preliminary remedy in a season when the days are warm and nights cool. Fever, hot and dry skin, restlessness, frequent, scanty and bloody stools with mucous and tenesmus; bacillary dysentery with anxiety to pass urine which is hot and brown-red.

(2) **Ferrum Phos** may be used in place of Aconite when there is greater passage of blood.

(3) **Aloes.** Amoebic dysentery; jelly-like mucous stools covered with blood accompanied by griping in the epigastrium region. A good deal of mucous is expelled. Chronic cases, sense of weakness in the rectum, as if the stool would escape involuntarily, violent tenesmus.

(4) **Arsenicum.** The indications are : slimy and bloody stools which are undigested; horrible offensive stools are blackish brown. The tenesmus and burning of anus and rectum continue even after stools which are scanty; there is great prostration, thirst, restlessness, but no abdominal distention. Is suitable at the late stage, when the patient becomes very weak; dysentery brought on by cold drinks or fruit.

(5) **Baptisia** will be useful in dysentery of old people with low fever of a typhoid type, pure blood, tongue coated yellow-brown in the centre, tenesmus, but with no pain, offensive discharges, and sore, bruised feeling over the body are present. Tongue is dry.

(6) **Cantharis.** Bloody slimy discharge like the scrapings of intestines; tenesmus is marked; painful urination and colic-like doubling-up of the patient, not giving relief; pains not ceasing after stools. Unconquerable thirst.

(7) **Ipecac.** Amoebic dysentery caused by eating raw fruit or sour fruit, where a large quantity of mucous is expelled ; slimy blood discharges ; sickness and vomiting ; worse in the evening.

(8) **Lachesis.** The constriction of anus and great offensiveness of stools indicate this remedy. The discharges may be chocolate-coloured, and during stools a feeling of burning at the anus is there.

(9) **Mercurius Cor.** The chief indication is intense painful tenesmus with bloody stools. Besides, there is tenesmus in the bladder too, and stools are scanty with burning at anus. Crampy pain continues after stool.

(10) **Mercurius Sol** is to be used in mild cases of bacillary dysentery with a never-get-done feeling.

(11) **Colocynth.** If there is much colic, relieved by bending double.

(12) **Nitric Acid** burning and tickling in the rectum, tenesmus, pain after stool.

(13) **Mercurius Dulcis** is to be used, where tenesmus and pain are slight.

(14) **Nux Vom** is to be used in scanty and frequent dysenteric stools, attended with griping pain, and tenesmus which ceases after evacuation.

(15) **Rhus Tox.** Dysenteric bloody stools with tearing pains down the thigh and back ; discharges jelly-like, bloody mucous and some natural faeces. (To be given in the last stage, when dysentery assumes the typhoid form.) The patient is so restless that he changes his position constantly. The tongue is dry and rough with red edges.

(16) **Sulphur.** Chronic cases, where tenesmus exists all the time and there is frequent and sudden urging to stool which are bloody, slimy, scanty and watery and the patient is worse in the morning.

(17) **Trombidium.** Dysenteric stools after food or drink with much abdominal pain and tenesmus.

(18) **Vaccinium Myrt** to be used in very chronic cases ; it prevents re-infection of bowels.

(19) **EMETIN Hydrochloride 2X** for Entamoebic Dysentery.

(20) **Aloes 6** is more often indicated in early cases of amoebiasis.

THE IRRITABLE COLON

(Mucous membranous colitis)

Definition :

This is a disturbance of colon function in the absence of organic disease which consists of pain, disordered bowel habit and occasionally the passage of mucous rectally.

Etiology and pathology :

It is an extremely common condition and accounts for nearly half of all patients who complain of the gastro-intestinal symptoms. The etiology is unknown, but in approximately half of the patients, symptoms follow an attack of dysentery or food poisoning. The attacks are precipitated when there is obvious stress and strain to a chronic dysentery patient, who returns from abroad, while there is objective evidence of irritability of the bowel.

Symptoms :

(1) Occasionally there is hypogastric griping pain. The pain is eased by bowel action or passing flatus.

(2) The pain is aggravated by food.

(3) The bowel habits are those of alternating constipation, during which time pain is aggravated, to be relieved by an attack of diarrhoea, when an excess of mucous is passed. (called mucous colitis)

(4) The stools are generally thin and like thin balls.

(5) Sometimes the bowels are emptied quickly and sometimes there is no feeling of movement of the bowels.

(6) Some patients have painless diarrhoea.

(7) There are symptoms of anxiety.

Diagnosis :

(1) Physical examination shows no abnormal signs apart from tenderness over the sigmoid colon.

(2) There may be an excess of mucous.

(3) Positive evidence is pain of a colonic origin that may be afforded by the reproduction of the pain during sigmoidoscopy.

(4) Carcinoma of the colon or diverticulitis have to be excluded by a barium enema and E.S.R.

Treatment :

Aloes. Plenty of mucous with pain in rectum after stool. Sense of insecurity of rectum, when passing flatus : lumpy, watery or jelly-like stools.

Allium Sativa. Colitis ; this remedy will increase the peristalsis of the intestine.

Mercurius Dulcis. Scanty, bloody mucous, covered with bile ; soreness of anus with constant desire for stools and slight tenesmus. For ulcerative colitis, compare the following remedies :

- (i) Arg. Nit.
- (ii) Cuprum.
- (iii) Kal. Bich. (Chronic cases)
- (iv) Merc. Cor.
- (v) Sulphur.
- (vi) Terebinthina.
- (vii) Uranium.

POLYPI OF THE COLON

New Growths. Originally, these are small non-malignant harmless tumours, but are liable to become malignant with subsequent growth and symptoms, which are loose stools, mixed with blood, mucous, and pus. Stools resemble those of ulcerative colitis. Diagnosis can be made by rectal examination and X-Ray.

Treatment :

This should be conducted on the lines, indicated for 'Tumours' and 'Polypi' elsewhere. Some of the remedies suggested are :

- (a) Cact. G.
- (b) Phos.
- (c) Sang. Nit.
- (d) Thuja.
- (e) Formica Rufa.
- (f) Kali Sulph.

CARCINOMA OF THE COLON AND RECTUM**Etiology and pathology :**

This neoplasm is slightly more common than the carcinoma of the breast. It is common where carcinoma of the stomach is rare and vice-versa is also true.

1. Predisposing diseases are chronic ulcerative colitis, and familial polyposis, but simple solitary polypus of the colon rarely becomes malignant.

2. There is possibly a genetic predisposition distinct from the predisposing diseases.

3. The growths are predominantly adeno-carcinomas. They may be papillomas which have ulcerated and secondarily infected and ooze blood or ulcerate.

4. On the other hand, scirrhus lesions, especially on the left side of the colon leading to obstruction may occur.

5. In a grade A tumour, penetration does not occur, but in grade B tumour penetration may occur.

Clinical features :

- 1. This varies with the site of the lesion.
- 2. The unexplained iron deficiency anaemia or dyspepsia of recent origin provide a basis for the suspicion of this disease.

3. Abdominal pain occurs in more than 50% of patients.

4. Alternating diarrhoea and constipation or frequent passage of mucous often tinged with blood is most common in the carcinoma of rectum.

5. Frank bleeding is noted in two-thirds of the patients.

6. Symptoms of partial intestinal obstruction with abdominal distention and loud gurgling of wind after food occurs.

7. There may be tenesmus, invasion of the bladder or prostate or vagina.

8. Occasionally enlargement of liver with jaundice may be there.

9. With the peritoneal spread, there may be ascites.

10. Eventually there is loss of weight, due to anorexia, and also fistulae may occur between the stomach, gall bladder or other organs.

Diagnosis :

Most rectal growths may be left to rectal examination. Suspicion arouses when there is blood coming out from sigmoid colon. To define the site, a barium enema is performed. The E.S.R. may be raised, and if the liver is enlarged, there is usually an increase in the plasma alkaline phosphatase.

A caecal carcinoma must be differentiated from a solitary caecal ulcer, diverticula, appendicitis, Crohn's disease, *tuberculosis* and *amaeboma*.

Treatment :

Proceed on the lines of 'Malignant Tumours'. Possible remedies may be :

1. Barium carb.
2. Lapis Alba.
3. Thuja.
4. Calcarea Fluor.

5. Calcarea Carb.
6. Uric Acid.
7. Ruta (cancer of lower bowels).
8. Ornith (cancer of caecum).

TUBERCULOSIS OF BOWELS

Etiology :

1. Primary infection of the bowel from milk is common in children, but not quite so in adults.
2. Most commonly, it is caused by swallowing tuberculous sputum during pulmonary tuberculosis. The parts affected are the ileum and the caecum.

Symptoms and Signs :

1. Tuberculous enteritis should be suspected in children suffering from fever, diarrhoea, abdominal distention, pain, enlarged glands, anaemia, wasting, weakness and pulmonary tuberculosis.
2. Presence of tumours in the right iliac region may be noticed.

Diagnosis :

Radiography is able to provide a definite diagnosis more often, though in some cases no changes are made out in the small intestine. A slight enlargement of the liver is present in less than half of the cases. The diagnosis is nearly almost impossible, unless a tumour is present. It may be noted that hyperplastic tuberculosis of the caecum is probably a form of regional ileitis.

Treatment :

- General* : 1. Diet should be milk and butter-milk.
2. Fat should be taken in some form ; cod-liver oil is preferable.
 3. Alcoholic stimulants should not be used.

Curative :

1. **Bacillinum 200.** A general remedy, once or twice a week ; wasting.
2. **Mercurius Cor.** Premonitory diarrhoea.
3. **Iodine.** Great wasting.
4. **Calcarea Carb.** Scrofulous children of soft fibre.
5. **Plumbum Aceticum.** Obstinate constipation.
6. **Abrotanum.** Large hard abdomen with excessive emaciation and loss of appetite or sickness.

Other remedies :

1. **Arsenicum.**
2. **Calc. Phos.**
3. **Carbo Veg.**
4. **Conium.**
5. **Ferrum.**
6. **Lyc.**
7. **Phos.**
8. **Puls.**
9. **Silicea.**
10. **Stannum.**
11. **Sulphur.**

The remedies for the cancer of rectum being, *Ruta*, *Hydrastis*, and *Kali cyanide*.

DIVERTICULAR DISEASE OF THE COLON**Definition :**

This condition consists of small pouches of mucous membrane which herniate through the wall of the colon and are covered by peritoneum.

Etiology and Pathology.

The etiology is unknown. It is very rare in under-developed countries and may be produced in animals by feeding them on a low-roughage diet.

Diverticula may either be generalised, isolated or most commonly localised to the sigmoid colon. The initial lesion seems to be the hypertrophy of the longitudinal muscle of the colon. This muscle remains contracted, giving rise to the concertinering of the bowel. The mouths of the diverticula open at the bottom of the corrugated bowel lumen. Faecal material may become impacted and inflammation may occur in the obstructed pouch. The resulting diverticulitis may give rise to pericolic abscess, and other viscera may adhere to the inflamed bowel, enabling obstruction to occur or fistual formation to ensue. Occasionally, the inflamed bowel ruptures into the peritoneal cavity, giving rise to peritonitis, or it may erode a vessel and cause a large haemorrhage from the colon.

Clinical Picture :

1. Uncomplicated diverticular disease may cause cramping left-sided colonic type abdominal pain with irregular bowel action.

2. When the picture changes into diverticulitis, the patient experiences severe left-sided pain. The temperature is high, and there is local tenderness over the colon.

3. The attack may resolve completely, or it may take a chronic turn with left-sided pain, tenderness, and the passage of blood and mucous.

4. At this stage, a mass on the left side of the abdomen is often found. This may be due to the formation of an abscess and thickening of intestinal wall may cause intestinal obstruction.

5. Signs of fistula formation are those of urinary tract infection with occasional diarrhoea.

6. Occasionally peritonitis occurs, when there is severe abdominal pain.

Diagnosis :

1. The presence of a long pelvic colon indicates that there is inflammation in the caecal diverticulum.

2. If there is peritonitis, an acute pain may be misdiagnosed as appendicitis.

In chronic cases, it is important to distinguish the disease from carcinoma of the colon with which it may co-exist. It can only be differentiated on barium enema examination. The inflammatory complication can only be diagnosed radiologically when an abscess or fistula is demonstrated.

Treatment :

Diet : The diet should be non-irritant. Avoid leafy vegetables or roughage.

Curative : The treatment should be conducted on indications. Consult disorders *Diarrhoea, Constipation, Colitis, Dysentery* and *Tumour*.

ACUTE INTESTINAL OBSTRUCTION

Definition :

It is a condition depicting failure of progression of intestinal contents due to physical obstruction of the bowel, or impaired motor activity of the bowel (Paralytic ileus).

Etiology :

1. Obstruction due to the occlusion of the bowel lumen may be due to foreign bodies, such as, gallstones, bezoars, meconium, worms or enteroliths.

2. Causes in the wall of the bowel are atresia, neoplasms, strictures and diverticular disease.

3. Causes compressing the wall are obstructed hernias, adhesions or volvulus.

4. The small bowel is involved in 80% of cases with acute intestinal obstruction.

5. In the neonate, the common causes are atresia, volvulus, meconium ileus. In infants, they are, intussusception, a strangulated hernia, and in the young, adult and middle aged, adhesions and bands and obstructed hernias; in the elderly, carcinoma, diverticulitis, and faecal impaction are the common causes.

1. a black greenish discharge.

2. an intestinal stone.

6. Generally the commonest single cause is adhesion which has supplanted hernias.

Clinical Picture :

1. It is dominated by pain, vomiting, abdominal discomfort and constipation.

2. The pain is colicky, often severe and may coincide with loud gurgling of the wind.

3. Vomiting may be less in ileal obstruction and absent in large bowel obstruction.

4. Constipation may be absolute even to the point of passing no gas.

5. Distention of the upper abdomen tends to occur with upper small bowel obstruction, central abdominal distention with ileal obstruction, and the whole of abdomen with large bowel lesions.

6. There may be variable peritonism.

7. A scar suggests an adhesion, and local tenderness may point to the site of a lesion.

Diagnosis :

The clinical findings are supplemented by an X-ray of the supine abdomen for the presence of gas in dilated bowel. The syndrome must be differentiated from acute gastro-enteritis, pancreatitis, appendicitis, a perforated peptic ulcer, or renal or biliary colic.

Treatment :

General : (1) All solids should be forbidden including milk and vegetables.

(2) Only clear soups of meat or vegetables can be given.

Curative :

(1) **Belladonna.** Pain and stitches in the left side of the abdomen, when coughing or sneezing, worse by jar or pressure. Extreme sensitiveness to touch, bed-clothes etc.

(2) **Colocynth.** Agonising cutting pain in abdomen, relieved by bending double and pressing on the abdomen.

(3) **Mercurius Cor.** Bruised sensation and pain in the caecal region and transverse colon ; bloated abdomen which is painful to touch.

(4) **Nux Vom.** Twisting strangulated pain.

(5) **Opium.** Absence of pain or desire for stool with a discharge of hard faeces.

(6) **Plumbum.** Excessive colic, radiating to all parts of the body with cramps and drawing in of the abdomen.

PILES

(Haemorrhoids)

Definition :

Piles is an enlargement (varicosity) of the haemorrhoidal veins, which are situated in the mucous membrane outside and inside the sphincter ani. When the outside veins are swollen, it is called *External Haemorrhoids* ; and when the inside veins are involved, it is called *internal haemorrhoids*. If one of these veins bursts during evacuation, it is termed 'bleeding piles' and when it does not, we call the condition 'blind piles'.

Etiology :

Piles may be caused by :

(1) portal hypertension.

(2) habitual constipation, especially of persons taking spicy foods and alcohol.

(3) pelvic diseases, e.g. frequent pregnancies, uterine displacement and growths in that portion.

Symptoms :

(1) The most common symptom is rectal bleeding. This consists of fresh blood coming generally at the end of defaecation, particularly when it is associated with constipation.

(2) Pain on defaecation. The pain is more marked, when the piles are prolapsed or strangulated in between sphincter and muscles.

(3) Fissures may be associated with piles.

(4) Anaemia may be associated with the frequent passage of much blood in drops separately from piles.

Treatment :

General : The patient must

- (1) avoid liquor and coffee,
- (2) drink water often
- (3) eat little meat and take plenty of exercise, and
- (4) wash the parts with cold water once or twice a day, when the piles do not bleed.

Curative :

(1) **Aconite.** This remedy gives relief, when there is discharge of blood with shooting pains and pressure on anus. The abdomen is tense and hard with griping pains. The small of back feels, as if broken or bruised.

(2) **Aesculus.** Blind and bleeding piles. The rectum is dry and painful with a feeling that it is full of sticks. There are sharp, shooting pains in the back. The tumours are protruding with much pain after stool and fulness in the region of liver. The mucous membrane of the rectum is swollen, and so it obstructs the passage of stool which is dry and hard. Burning, itching and dryness are key symptoms.

(3) **Aloes.** Useful when piles protrude like a bunch of grapes and often bleed profusely. The application of cold water relieves the symptoms. Another symptom is burning with a tendency to diarrhoea (*Collinsonia* has a tendency to constipation). There is also a feeling of weakness and soreness after stool.

(4) **Ammonium Carb.** Protruding piles which bleed ; hard knotty, difficult stools with itching at anus. Bleeding is worse after menses with pain in abdomen.

(5) **Arsenicum.** Haemorrhoids which are bluish, burn like fire, and are relieved by heat. Prostration and debility are marked.

(6) **Calc. Fluor.** Internal or blind piles with pain in the back far down in the sacrum ; constipation with itching at anus.

(7) **Capsicum**. Bleeding piles with a burning pain, itching, smarting and stinging in anus during stool.

(8) **Carbo Veg**. For white haemorrhoids with much mucous and blood and much burning in anus. The patient is much troubled with wind or becomes weak (it should be followed by *Arsenicum*, if the progress is partial).

(9) **Fluoric Acid**. For external piles, when acute symptoms have disappeared and only insensitive swelling remains behind.

(10) **Causticum**. Fistula with large and hard piles, painful on touch, sitting and standing, but less after stool.

(11) **Hamamelis**. For bleeding haemorrhoids, when flow of dark blood is excessive, with great soreness and inflammation.

(12) **Hypericum**. Bleeding piles with much pain and soreness, burning, biting and dryness in the rectum.

(13) **Ignatia**. For haemorrhoids, characterised by sharp stitching pains, shooting up the rectum.

(14) **Kali Mur**. Bleeding piles, with dark and thick blood which is fibrinous and clotted.

(15) **Lachesis**. For protruding piles becoming purplish and constricted.

(16) **Lycopodium**. For both blind (which do not burst) and bleeding piles having a copious flow. In the former case, the tumours are hard, bluish lumps. Haemorrhoids are very painful to touch. The patient is much troubled by the wind.

(17) **Mucuna (Dolichos)**. For haemorrhoidal diathesis with burning pains.

(18) **Muriatic Acid**. Haemorrhoids during pregnancy, bluish, hot with violent stitches and most sensitive to touch.

(19) **Nitric Acid**. For protruding piles that bleed easily, with constipation and fissures ; burning, itching and cutting pains after stool.

(20) **Nux Vom.** For blind piles, which are large with burning, stinging and a contracted feeling in the rectum and a bruised pain in the small of back, particularly due to sedentary habits, stimulants and drugging ; or bleeding piles with constant urging to stool, relieved by cold water.

(21) **Ratanhia.** For protrusion of dilated veins with burning and fissure in the anus, and its great pain and sensitiveness.

(22) **Sulphur.** Haemorrhoids, both blind and bleeding, due to ailments that lead to these troubles from the suppression of blood from the tumours which promote heat in the head, and uneasiness in the liver. Constipation is present with a desire for stool and itching of the anus.

FISTULA-IN-ANO

Definition :

Fistula-in-ano is a pipe-like communication and sore between two body surfaces, *e.g.* between the colon and the stomach, or between the colon and the abdominal surface. It has a narrow callous opening. The whole surface is lined by an imperfect mucous membrane, secreting pus.

Varieties :

(1) **The open and complete fistula,** which enters the interior of the rectum, and opens through the skin. At the other end is a common type.

(2) **The blind external fistula.** It only opens through the skin, and does not penetrate through the bowel.

(3) **The blind internal fistula.** It is not readily detected, but is only indicated by pain at stool and discharge of blood and pus along with the faeces. It is within an inch or so of the rectum.

Causes :

Fistulae originate in abscesses, which are prevented from healing by the movement of the sphincter and the bowel itself, or by the ulceration of the mucous membrane of the rectum, and by the

generation of foul fluids and gases, which generally excite progressive ulceration towards the surface. This disease is generally common in consumptive patients, either from the deposit of tubercles in the mucous membrane of the rectum, or from the tissue about the rectum losing its fat, and falling into an unhealthy watery condition.

Symptoms and Signs :

(1) At first a small hard lump appears on one side of the rectum.

(2) The lump enlarges and occasions considerable pain and frequent constitutional disturbances.

(3) The surrounding parts get swollen, the skin becomes red, and suppuration quickly follows. As the abscess is beginning to form, the patient experiences pain when passing motions, which are slightly tinged with blood.

(4) Relief follows discharge from the abscess, which is generally offensive, and the swelling subsides.

(5) An opening is formed near the anus and on pressure a hardened track may be felt leading towards the bowel.

(6) The opening is generally difficult to find, as it is very small, and is covered by the folds of the skin near the anus. It is sometimes concealed by a papilla.

Treatment :

(1) **Berberis Vul. Q.** Initial remedy, when there is tearing pain around anus ; or if the fistula trouble in the anus alternates with the chest disorders (Try *CALC. PHOS.* if this fails).

(2) **Calcarea Sulph. 6** : painful abscesses about the fistula.

(3) **Causticum**. Rectum sore and burns ; fistula with large piles.

(4) **Fluoric Acid**. Fistula with syphilitic and mercurial history.

(5) **Nux Vom.** Stools relieve pain for a time, constant uneasiness in rectum.

(6) **Sulphur**. Redness around the anus, with itching, oozing and bleeding. Discharges are offensive ; chronic cases.

(7) **Silicea**. It is the chief remedy especially in scrofulous cases ; suitable for all cases, attended with pus formation ; rectum stings ; stools recede.

(8) **Lycopodium**. When there is evidence of urinary or digestive trouble, pains come and go suddenly.

(9) **Paeonia**. Fistula and diarrhoea with anal burning and internal chilliness.

Note. Externally use Hydrastis and Calendula lotion.

PROLAPSUS-IN-ANUS

(Falling of bowels)

Definition :

This is a protrusion of the mucous lining of the rectum through the anus surface after straining the intestine, which goes back by itself, unless it is a severe case, when the rectum protrudes even on standing, walking or riding.

Causes :

These are :

- (1) long-continued constipation,
- (2) diarrhoea,
- (3) purgatives, and
- (4) straining, excited by worms.

Treatment :

(1) **Aesculus Hip**. Much pain after stool with prolapsus and possibly haemorrhoids.

(2) **Arnica**. When rectum protrudes by walking and looks bluish-red.

(3) **Aloes**. Prolapsus with diarrhoea, bleeding and tenesmus ; pain relieved by cold water.

(4) **Ferrum Phos.** Prolapsus in children. (Try *Ferrum Met*, if this fails).

(5) **Gambogia.** When there is green or yellow diarrhoea with burning pain and prolapsus with hard, insufficient stool and violent urging.

(6) **Ignatia.** Prolapsus by straining, and difficult passage of faeces and itching. Give a dose three times daily for 2 or 3 days (Nux. Vom. for vigorous children).

(7) **Muriatic Acid.** Prolapsus while urinating.

(8) **Podophyllum.** Prolapsus accompanying diarrhoea with straining and offensive stools, and irritation from teething etc.

(9) **Ruta.** Prolapsus on slightest attempt at stool, or the trouble that remains after dysentery.

(10) **Lycopodium and Sulphur.** For obstinate cases, when all other remedies fail.

FISSURE-IN-ANUS

Definition and Etiology :

Fissures are found not only on the skin, as deep, bleeding and suppurative ulcers, but in the anus and the rectum also. The latter are generally found as a result of piles, constipation and a few serious diseases.

Treatment :

(1) **Silicea.** For peri-rectal ulcer, partially expelled stool comes back, and slips. There is great pain half an hour after stool and lasts for several hours.

(2) **Platina.** Has fissure of anus with crawling and itching every evening. **Krameria** : Has long-lasting severe pain after each stool with burning and tenesmus.

(3) **Paeonia.** Has fissures with much oozing, the anus smarts all the time. It is sore, moist and offensive. The patient sometimes walks on the floor the whole night.

(4) **Ratanhia.** Has much constriction about the anus, which aches and burns for hours after stool with dryness in the rectum, and also cutting and lancinating pains in the same region.

(5) **Hydrastis**. Has burning before, during and after stool.

6. **Graphites**. Has no special irritability. Here the fissures are caused by large faeces, when the parts are sore and smart.

(7) **Nitric Acid**. For fissures having a sensation as if splinters or sticks were in the anus. There is much tenesmus and constant oozing of faetid matter from the parts with burning, rawness and smarting.

(8) **Sanguinaria Nitrate**. Has an irritable itching and burning in the rectum.

(iv) Diseases of the Liver, Gall-bladder and Pancreas

General Observations :

1. In normal beings, the weight of the liver is about 1500 gms.
2. It is situated under the right lower ribs.
3. It consists of cells, which are traversed by blood vessels, lymphatics, nerves, and bile ducts,
4. Blood is supplied by portal vein to the two-thirds of the parenchyma and the rest one-third is provided by hepatic artery.
5. The total supply of blood to the liver is about 1.5 litres per minute.

The liver has the following important functions :

1. It produces bile, and through the bile salts, it facilitates the absorption of fat and vitamins that are soluble in fat.
2. The liver produces a large number of proteins. Of these hepatic proteins, albumins are the most important.
3. Carbohydrates (starchy products) in the form of glucose and galactose are metabolised in the liver and the end-result of this process is the synthesis of glycogen.
4. The liver is able to utilise free fatty acids released from fat to provide energy.

5. The normal liver contains fat usually 5% of its weight. An increase of this fat accounts for diabetes and alcohol liver. The liver also plays a central role in the breakdown of steroid hormones, when hormones undergo degradation and excretion in the bile. Some hormones are removed from the circulation by the liver.

The liver also has storage functions and among the substances stored are

1. iron, vitamin B 12 and folic acid.

HEPATITIS

General Observations :

Hepatitis is an acute inflammation disorder of the liver. This can be due to a variety of pathogenic agents. These include :

1. Virus of *yellow fever*.
2. The virus of infective hepatitis and
3. Serum or syringe hepatitis. The number of these agents is so large that they need not be elaborated to prevent confusion. Let us describe the viral hepatitis, called the infective hepatitis which is the most common.

INFECTIVE HEPATITIS

Definition :

Infective hepatitis is the inflammation of the liver due to an unknown virus or viruses.

Etiology :

The disease is caused certainly by a virus but none have been so far isolated. The disease is principally transmitted by the oral-faecal route. Chimpanzees may act as occasional carriers. The disease is common among young people where conditions of hygiene are poor, particularly where there is faecal pollution of drinking water or food such as shell-fish. The Australia antigen, (known as hepatitis antigen-HAA) is identifiable in the blood of a considerable percentage of patients with virus hepatitis and is thought to be specially associated with serum hepatitis.

Clinical Picture :

The incubation period lasts from 2-6 weeks, following which there is a sudden onset of profound anorexia, nausea and vomiting with abnormal distention and some pain or tenderness under the costal margin. The patient is pyrexial at this stage, which usually lasts from 3 to 7 days. Less common at the stage are skin rashes, arthralgia and the symptoms of meningism.

Physical signs are minimal but may include hepatomegaly and there is hepatic tenderness. The urine may show presence of bilirubin before he is actually icteric. The jaundice develops rapidly, the temperature returns to normal and the patient feels much better. At this stage appetite improves and abdominal symptoms disappear. Physical symptoms now include hepatomegaly and enlarged spleen together with enlargement of some lymphnodes in the root of the neck on the right side. The jaundice usually lasts for 2 weeks and during this phase, the patient is improving.

Prognosis :

Prognosis is generally unfavourable, as treatment of any value is quite impossible without a close study of the case.

Differential Diagnosis :

Infective hepatitis is to be differentiated from **obstructive jaundice** where there is much pruritus, and flow of bilirubin and positive skiagram in favour of obstruction, while liver deficiency is in favour of infective hepatitis. The liver is often hard and irregular.

Treatment :

General : 1. Rest in bed for at least 2 weeks.

2. Adequate intake of proteins, e.g. skimmed milk, lean meat and fish, plenty of glucose and restricted fat.

Curative :

1. **Bryonia** : A gastro-hepatic remedy with pressive pains in the right shoulder, giddiness and slightly yellow eyes. Symptoms are aggravated by motion, respiration and coughing. Thick yellow coating of tongue ; constipation.

2. **Chelidonium** pains under the angle of the right shoulder blade extending to chest, or hypochondrium are characteristic ; swelling of liver and sharp stitching pains in the region of liver ; fever, jaundice, yellow-coated tongue, bitter taste, craving for sour and acid things, stools bright-yellow ; if loose, of a clayey colour sometimes.

3. **Euonymus**. Excellent remedy in hepatic congestion with intense heavy, occipital headache.

4. **Mercurius Cor**. Pressive dull pain and stitches in liver, the patient cannot lie on the right side ; skin and eye yellow ; stools either clay-coloured or yellowish green with great tenesmus ; yellowish-coated white tongue and fetid breath ; thirst and continued shivering, followed by clammy perspiration without relief.

5. **Phosphorus**. Fatty degeneration of liver with soreness and jaundice ; stools grey-white.

6. **Lachesis** : Follows **Mercurius**, if the latter fails to relieve, very sensitive to pressure upon hypochondriac region ; much flatulence ; palpitation of heart ; useful in liver affections of drunkards.

7. **Natrum Sulph**. Almost specific for liver affections ; weight and aching in liver ; the patient is able to turn on the right side, but when turning to the left, the liver is pulled and drawn ; bad slimy taste in mouth.

8. **Cornus Circinate**. Hepatitis ; pain in the morning with disordered abdomen ; stools loose, windy, dark, immediately after dinner.

9. **China**. Worse every other day with shooting and pressive pains in the liver which is swollen and hard, or bitter taste, tongue coated thickly yellowish.

INFECTIONS OF THE LIVER

(Pyogenic Infection)

Abscess ;

Pyogenic infections in the liver with resultant liver abscess formation results from entry of infected material either via portal system by systemic circulation (Septicemia) or by spread via the biliary tract (ascending cholangitis).

Clinical Picture :

This is indistinguishable in these instances, though in patients with ascending cholangitis, rigor, hepatic tenderness, and features of obstructive jaundice may in particular suggest the biliary route of infection. Patients are ill : sometimes the illness develops acutely with fever, hepatomegaly, and mild jaundice and a blood count showing leucocytosis.

Diagnosis can be difficult and confusion with hepatic cancer, sub-phrenic abscess and a primary pulmonary infection may occur. Amoebic abscess of the liver is an important diagnostic consideration. A careful examination of the pus and abscess wall must be made to exclude amoebiasis, though the characteristics of the abscess contents are helpful. Again the diagnosis of suppurative liver abscess is also necessary.

Tuberculosis :

Tuberculous disease of the liver is rare, except for its involvement in miliary tuberculosis and in tuberculous peritonitis. Spreading tuberculous disease is occasionally seen, when the picture is of jaundice of the liver cell variety, pyrexia, cachexia and hepatomegaly. There is evidence of invariable caseating disease else where.

Syphilis :

The liver is involved in congenital syphilis by a fine hepatic fibrosis ; but this is exceedingly rare. Though jaundice was common in patients of syphilis, this was the result of allopathic therapy and in most cases due to serum-hepatitis or more rarely jaundice.

In tertiary syphilis, there may be one or more gummata in the liver causing coarse hepatic scarring without cirrhosis. In liver disease, Wasserman reaction may be anti-complementary and a treponemal immobilization test may be required to exclude syphilitic infection. Male patients may be found to have cirrhosis with syphilis.

Treatment :

Diet : Must be nutritious.

Curative :

1. **Boldoa Fragrans** : Painful hepatic diseases ; burning weight in liver and stomach ; bitter taste, no appetite, stone in gall bladder with constipation, liver congestion and languor.

2. **Raphanus**. Sticking pains in liver ; great accumulation of gas ; tympanitis ; no flatus upwards or downwards.

3. **Belladonna**. For redness, heat, throbbing, violent pain and burning.

4. **Hepar Sulph**. Hepatitis and hepatic abscesses ; abdomen distended and tense ; stitching pains in the liver region. It should be given high, if indicated, and before the pus has actually formed.

5. **Silicea**. Hepatic abscess ; much rumbling in bowels ; abdomen, hard and bloated ; cutting pain with constipation.

6. **Mercurius**. When there is a tendency to the formation of pus, which is thin, greenish and offensive, streaked with blood.

7. **Lachesis**. Liver region sensitive : cannot bear anything around the waist : especially suitable for drunkards ; abdomen tympanatic, sensitive, and painful.

8. **Viper a**. When there is violent pain in the enlarged liver with jaundice and fever.

9. **Theridion**. For vertigo and nausea associated with the abscess of liver.

PORTAL PYLEPHLEBITIS OR PORTAL PYAEMIA**Definition :**

Portal pylephlebitis is mostly an infective process of inflammation of the veins of the liver via the portal vein which carries blood to the liver, and is formed by the union of upper mesenteric and splenic veins. It may cause multiple liver abscesses.

Etiology :

The main causes of this condition are either

(i) traumatic, or

(ii) pyaemic, as a result of infection, usually, from the bacteria, *esch. Coli*. (*Escherichia Coli*), streptococci, and very rarely dysenteric

bacilli. The infection is carried from a focus outside the portal vein commonly either from appendicitis, or inflammations of gall-ducts (Cholecystitis), or a post-operated rectum.

The process of infection of the portal vein, which coagulates the blood within, sometimes begins in the trunk of the vein and spreads to its branches. At other times, it commences in the branches and extends to the trunk of the portal vein. The clot of blood, either loses its fluid constituent and adheres to the walls of the veins and involves the trunk of the portal vein in *thrombosis* (thrombosis of portal vein), or it is converted into pus in the bile ducts and then it is called *Suppurative pylephlebitis*.

Suppurative type : Symptoms :

- (i) Shaking chills with or without fever.
- (ii) Pain and tenderness in liver.
- (iii) Distention and flatulence.
- (iv) Vomiting and diarrhoea.

Signs :

- (i) Enlargement of liver.
- (ii) Slight Jaundice.
- (iii) Occasionally enlargement of spleen.
- (iv) Leucocytosis.
- (v) Blood culture is usually negative.

Differential Diagnosis :

This is to be distinguished from *Suppurative cholangitis* (inflammation of the bile duct) and *Amoebic Hepatitis* as follows :

Cholangitis is an after-effect with gallstones and jaundice, which is early and deep, while in *suppurative pylephlebitis*, there is moderate jaundice, high fever with rigor, and enlarged liver.

Amoebic Hepatitis, however, has a milder course, and a history of dysentery.

Treatment :

(1) **Aesculus Hip.** Torpor and congestion of liver and portal system and constipation.

(2) **Aloes.** Portal congestion. There is no remedy better than this for portal complaints.

(3) **Nux. Vom.** Suited to portal congestion.

(4) **Sulphur.** Pain and soreness over liver with portal congestion. Standing is the worst position for *Sulphur* patients. It is a very uncomfortable position for them.

(5) **Collinsonia.** Portal and venous congestion, resulting in haemorrhoids and constipation.

(6) Other remedies are : *Leptandra* and *Lycopodium*.

VASCULAR DISORDERS OF THE LIVER**(Passive Congestion)****Definition :**

Passive congestion of liver is the enlargement of venous capillaries of the liver from being over-filled with venous blood. In this condition, the capillaries look dark, while the portion of the liver around them looks lighter and in some places yellow owing to the accumulation of bile. If, therefore, a section of the liver is cut, the surface so cut will give a nutmeg-like appearance of various colours. With the progressive congestion of the veins and capillaries, the liver cells in these areas are atrophied, and the liver shrinks again, and the surface, which was at first tense and smooth, becomes wrinkled, thickened, and granulated.

Etiology :

Nutmeg liver is always caused by the circulatory failure of the heart and disease of the lung which bring about impeded circulation and stenosis. In other words, it is the insufficiency and incompetency of the mitral and tricuspid valves especially which retard the circulation of blood to liver. Besides, pericarditis, emphysema, cirrhosis of lungs, thrombosis of hepatic vein, or a tumour may be responsible for this morbid condition.

Symptoms :

(1) Tenderness of liver ; sensation of weight, heaviness in the right hypochondrium and the pressure on it give pain.

(2) Gastric symptoms and haemorrhoidal complaints are common.

Signs :

(1) Enlargement of heart as noticed by palpation and percussion.

(2) Slight yellowishness of skin with blueness or cyanosis.

(3) Tendency to dropsy of abdomen and lower extremities.

(4) Symptoms of heart failure are prominent.

(5) Spleen is enlarged and some degree of jaundice may occur.

(6) Signs of general venous obstruction appear.

(7) Ascites is commonly seen in these situations.

Diagnosis :

This is often aided by the recognition of any heart disease. *Active Congestion* is due to errors of diet, indigestion, over-eating and drinking, while passive congestion is due to some cardiac or pulmonary disease.

Prognosis :

In active congestion, recovery is easy, while in passive congestion, recovery depends on the cause.

Treatment :

General : Regulate the diet and apply hot water bottle to the affected side.

Curative :

(1) **Belladonna**. For pains in the region of liver which extend to the chest and shoulders. Swelling and tension at the pit of stomach, oppressed and anxious respiration, congestion to the head and giddiness, dimness of vision, great thirst, anxiety, restlessness and sleeplessness.

(2) **Carduus Marianus.** This is useful, when there is nausea and vomiting of a greenish fluid (bile) with bitter taste, and red edges on white tongue. Both liver and heart are at fault in such cases and liver-spots on the body are present. It especially affects the left lobe of the liver.

(3) **Chamomilla.** For severe pains in the liver, caused by a fit of anger or chagrin and disappointment.

(4) **Chelidonium.** For pains in the region of the liver or under the angle of the right shoulder, extending to the chest, stomach or hypochondrium with swelling and chilliness. There may be fever, yellow coated tongue, bitter taste and a craving for acids and sour things, dull headache and bad odour from the mouth.

(5) **Iris.** For torpid liver with headache, loss of taste and appetite, nausea and vomiting ; burning and cutting pains in the right hypochondrium, symptoms worse by motion.

(6) **Lachesis.** For acute liver pains and disorders of the drunkards. The liver is oversensitive to touch and pressure, even of clothes worn.

(7) **Mercurius Dulcis.** For pains, disorders of liver due to overeating, in 1X or 2X potency.

(8) **Leptandra.** For great distress and aching pains and soreness of liver with black stools like tar. The tongue is coated yellow.

(9) **Nux Vom.** Is the first remedy, to be thought of, for those who have used stimulants, highly seasoned food, quinine or those who have abused purgatives. The Nux patient is very irritable. The tongue is clean in the fore-part, but coated at the back thickly. The taste is sour. The liver is swollen, sensitive and has stinging pains.

(10) **Podophyllum.** For chronically congested livers, when diarrhoea or constipation or both are present. The stool is watery in diarrhoea and clay-coloured in constipation. The tongue is coated yellow or white, and the bile is thick to be able to form stones. There is bad taste in the mouth.

(11) **Sepia.** Has a yellow face with the yellow saddle across the nose, with stools of bright yellow or ashy colour.

(12) **Sulphur.** For chronic affections of the liver with much pain and soreness in the liver region. Sulphur often completes the cure commenced by Nux.

TUMOURS AND CYSTS OF THE LIVER

(a) Cysts

(i) Polycystic disease of the liver

Definition and description :

The liver is involved by cysts formation which produces a nodular hepatomegaly. The cysts are surrounded by fibrous tissue capsule and lined by columnar epithelium. About half the patients with polycystic liver disease have renal involvement. Usually there are no symptoms referable to the liver, but on occasions patients may complain of quite severe hepatic pain. Liver cell function is retained and liver function tests are normal. The most successful way of diagnosing this condition is ultrasonic scanning of the liver.

(ii) Dilatation of the intrahepatic bile-ducts

Partial or complete dilatation of the intrahepatic bile-ducts forms another example of the effects of polycystic disease in the liver. The cystic dilatation of the bile ducts results in attacks of cholangitis and obstructive jaundice, and may be complicated by cholangio-carcinoma.

(b) Primary tumours of the liver

Hepatoma and cholangioma

Hepatoma :

This is a malignant neoplasm (new growth) of the liver which can occur either with or without accompanying hepatic cirrhosis. About 20% of patients with hepatic cirrhosis develop such a tumour either at one or several sites. It may be of liver cell (hepatoma) or of bile-duct origin (cholangioma).

Etiology :

The precise etiology of this condition is unknown, and the factor responsible for transforming the proliferative (increase by cell division) activity in a benign cirrhosis to that of malignant tumour is uncertain. But it is certain that aflatoxin consistently produce liver disease (hepatomata) in various rodents and in poultry. Another important factor which has been brought home is that patients who underwent angiography with thorium dioxide have developed malignant tumours of the liver and other organs including hepatoma.

Clinical Picture :

The patient with hepatic cirrhosis with one or more malignant tumours in the liver develops

- (1) abdominal pain.
- (2) secondary pain due to involvement of the spine and ribs.
- (3) loss of weight.
- (4) anorexia.
- (5) vomiting.
- (6) weakness.
- (7) ascites.
- (8) occasionally haemorrhage may also take place.
- (9) polycythaemia.

(10) Patients without cirrhosis develop progressive enlargement of the liver.

Diagnosis :

(1) Diagnosis is suggested by the picture of macro-nodular cirrhosis.

(2) Diagnostic confirmation may be obtained by needle biopsy or by finding malignant cells in the ascitic fluid.

(3) Hepatic angiography is a good way of demonstrating tumour in the liver.

(c) Secondary tumours of the liver**Description :**

The liver is frequently the site of metastases from a primary carcinoma of the alimentary tract, bronchus, breast, pancreas, kidney, and from skin and ocular melanomata.

Pathology :

The liver may contain one or two small deposits or may be greatly enlarged and replaced by neoplastic issue. Microscopic study of the tissues may often fail to reveal the site of the primary tumour.

Clinical Picture :

(1) Symptoms may give history of the previous surgical therapy of the primary tumour of the gut, bronchus, breast, etc.

(2) Patients generally lose weight and may complain of abdominal distention and pain due to hepatic enlargement.

(3) The patients have generally lost weight.

(4) Palpable lymph nodes in the axilla and the presence of jaundice and ascites are noticed.

Diagnosis :

(1) Alkaline phosphatase is raised.

(2) Leucocytosis and mild anaemia are too common.

(3) Examination of urine is also an important diagnostic sign.

(4) Laparoscopy is of value without biopsy.

Treatment of Cystic tumours of liver :

Select the remedies from the following :

(1) Carb an.

(2) Arsenicum.

(3) Belladonna.

(4) Conium.

(5) Hydrastis.

(6) Lycopodium.

- (7) Sepia.
- (8) Silicea.
- (9) Carcinosin.
- (10) Fluoric acid.
- (11) Taraxacum.
- (12) Ammonium chloride.
- (13) Calc. Ars.

CIRRHOSIS OF LIVER

Definition :

Cirrhosis of the liver is a chronic disorder of varying etiology where the liver shows cellular damage, fibrosis and the formation of regeneration nodules. The disease has been classified in various forms but an acceptable up to-date classification is as follows :

- 1. hepatic cirrhosis may be micro-nodular,
- 2. macro-nodular, or
- 3. mixed.

Micro-nodular Cirrhosis :

(1) In this type of cirrhosis, small regeneration nodules are formed following hepatic injury. These nodules are 3-4 mm. in diameter and the liver is often large and uniformly granular. This cirrhosis is often associated with alcoholism ;

Macro nodular Cirrhosis :

(2) Macro-nodular cirrhosis is associated with large regeneration nodules, one to several cm. in diameter. In general the cause is unknown though some cases follow hepatitis. The liver is coarsely nodular and may be large or characteristically smaller than usual.

Mixed Cirrhosis :

The regeneration nodules in this type are of varying size.

Complications of Cirrhosis :

The following complications may result from the cirrhotic process in the liver :

(a) Portal hypertension :

This results from a blockage of hepatic venous outflow from the hepatic nodules due to the pressure of enlarging regeneration nodules. The results of portal hypertension are :

(1) the opening up of communication between the portal vein and the systemic circulation, and the enlargement, of the peri-umbilical veins and the veins in the mucosa of the lower oesophagus which may cause rupture and cause bleeding.

(2) the other is that it tends to localise fluid retention, thus making ascites a feature of cirrhosis rather than ankle oedema.

Liver cell failure :

Failure of liver cell function due to the liver cell disease results in hypoalbuminaemia and fluid retention. It is also associated with icterus (jaundice) in many patients.

(b) Portosystemic encephalopathy (any disease of the brain) :

The shunting of some of the breakdown of products of protein digestion, from the portal circulation to the systemic circulation, results in the intoxication of the brain with the presence of confusion and drowsiness leading to coma. Certain other neurological syndromes may also result from this intoxication.

(c) Metabolic consequences :

The breakdown of certain hormones may be delayed in patients with liver cell disease, and may result in appearance of changes in the skin. They are usually seen on the neck. These changes include spider naevi which are vascular abnormalities. The lesion consists of a central raised red spot. Other abnormalities include an erythema of the palms and soles of the feet. Clubbing may also be found. Atrophy of the testes may be there. There may be certain changes in the nails. Bleeding from the oesophageal varices may be particularly dangerous.

(d) Hepatoma (a tumour of liver) :

This leads to the gradual deterioration of health in the patient.

TYPES OF CIRRHOSIS

(Cryptogenic cirrhosis)

Definition and Etiology :

This is a disease of unknown cause in which the patient develops a macro-nodular cirrhosis. The disease is fairly common and affects the middle-aged and elderly women. In about 30% of these patients, there is a previous history of viral hepatitis and it is thought that the disease results from the continual damage by the hepatitis virus in the liver.

Clinical Features :

The disease may be discovered by accident. The signs are :

- (1) cutaneous abnormalities associated with chronic liver disease (*e.g.* spider naevi) erythema in the palm and clubbing.
- (2) reduced liver and enlarged spleen.
- (3) There may be ascites and ankle oedema.
- (4) The patient is not markedly icteric.

Diagnosis :

Laboratory tests show

- (1) abnormal blood count.
- (2) anaemia.
- (3) reduced total white count.
- (4) signs of hypersplenism.
- (5) The liver function tests usually show a normal serum bilirubin, a low serum of albumin and raised globulins.
- (6) The liver shows the characteristics of macro-nodular cirrhosis with coarse bands of fibrous tissue separating large regeneration nodules and decreased infiltration of cells in the portal triads.

Differential Diagnosis :

They are :

- (1) hepatomegaly due to secondary neoplasm,
- (2) hepatic venous obstruction, and
- (3) fatty infiltration.

Prognosis :

With the formation of granules, there is hardly any chance of recovery.

PRIMARY BILIARY CIRRHOSIS

(chronic non-suppurative destructive cholangitis)

Etiology :

This is a micro-nodal cirrhosis based on chronic biliary obstruction, the obstruction being at the level of the biliary ducts. The initial action is thought to be an immunological (irreparable) damage to these structures.

Clinical Features :

(1) The disease is commonest in middle-aged and elderly women.

(2) It commences insidiously and the initial symptoms noted are usually those of pruritus (itching) and malaise.

(3) With progression of disease, obstructive jaundice of moderate depth becomes obvious.

(4) Chronic pruritus, pale stools and dark urine are there.

(5) The liver is enlarged and so is the spleen.

(6) Lesions on the eye lids may be seen, in skin creases and over pressure points.

(7) The patient is pigmented.

(8) Clubbing of fingers is often found and complications of obstructive jaundice may be seen.

(9) These include bone pain, haemorrhage tendency with epistaxis and skin bruising.

(10) In some patients, there is a tendency for peptic ulceration.

Diagnosis :

(1) Function tests show the presence of obstructive jaundice.

(2) Blood lipoids (fat globules) are numerous.

- (3) There is liver cell damage shown by low serum albumin.
- (4) With the progress of disease there is granuloma formation.
- (5) An important diagnostic test is the detection of mitochondrial antibodies in the patient's serum.

Note. There are many other types of cirrhosis :

- (a) Lipoid Hepatitis or Juvenile cirrhosis.
- (b) Wilson's disease (a congenital disease)
- (c) Alcoholic cirrhosis **due to the harmful effects of alcohol,**
(Production of red-blood cells)

Treatment : Dietary :

- (1) A diet consisting of 350 to 400 gm. of carbohydrates, 120 to 130 gm. of protein and 80 to 100 gm. of fat along with Vitamin B. Complex are necessary.

Curative :

(1) **Phosphorus.** Cirrhosis with hardness and largeness followed by atrophy, calls for this remedy, when jaundice is present in a malignant disease of liver. Vomiting of food, soon after it becomes warm in the stomach, is indicative. Stools are watery and pour as if from a hydrant.

(2) **Lycopodium.** This acts powerfully on liver. Its indications are : Cirrhosis with dull and aching pains, the liver is sensitive to touch with a feeling of tension as if a cord was tied round the waist. No clear jaundice symptoms, but complexion is peculiarly sallow ; appetite satiated after eating a few morsels.

(3) **Nasturtium Aquaticum.** Useful in cirrhosis of liver and dropsy.

(4) **Muriatic Acid.** To be given in the last stage, when dropsy sets in.

(5) **Natrum Chloride.** Hepatic disorders combined with congested and atonic states of uterus.

(6) **Mercurius Cor.** Dull pain in the region of liver with much sensitiveness ; liver enlarged with symptoms of jaundice ; secretion of bile deficient ; flatulent distention with pain ; clay-coloured stools or yellowish-green stools ; when there is secretion of

bile with great tenesmus ; yellowish-white coated tongue which takes imprint of teeth ; faetid breath, loss of appetite and low spirits.

(7) **Calcarea Arsenicum**. Infantile enlargement of liver and spleen, and liver complaints of drunkards after abstaining.

(8) **Carduus Marianus**. Four drops of tincture, 4 times daily, if given for some time will give much relief.

(9) **Aurum**. Cirrhosis of liver with ascites and grey stools and a tendency to commit suicide.

(10) **Cascara Sagrada**. Chronic indigestion, cirrhosis and jaundice ; haemorrhoids and constipation ; to be used in 3X or 6X potency.

(11) **Podophyllum**. Its function is to induce a large flow of bile. The liver is torpid and congested and is generally followed by jaundice. Diarrhoea ought to be present. Liver ought to be swollen and sensitive. Face and eyes are yellow and bad taste in mouth. Tongue is coated white or yellow and the bile may form gall-stones. The prominent liver symptom is that the patient is constantly rubbing the liver region with his hand.

(12) **Nux Vom**. It is the initial remedy to be thought of in cirrhosis of liver, occurring in those persons who have indulged in excessive alcoholic liquors, highly-spiced food, quinine, or those who have abused purgatives.

(13) **Hydrocotyle**. For obstruction in the whole hepatic region with slight pain in the upper portion of the liver ; crampy pains without nausea.

JAUNDICE

(Icterus)

Definition :

When the accumulation of bile pigment in the serum is associated with a yellow discolouration of the skin, of conjunctiva and

of the mucous membranes, the picture is that of a jaundiced patient. The level of serum bilirubin has to reach approximately 3 mg. per 100 ml. before such a change is noted clinically.

There are classically three types of jaundice as follows :

(1) **Obstructive jaundice.** In this situation, there is obstruction either in the common bile-duct, both hepatic ducts or in the biliary ductule inside the liver. It can, therefore, be classified as either intra or extra hepatic.

(2) **Liver cell jaundice.** In this condition, there is a failure of the liver cells to take up and conjugate bilirubin and to deliver it to the biliary duct for excretion.

(3) **Haemolytic jaundice.** In this situation which is accompanied by haemolytic anaemia, the amount of bilirubin delivered to the liver is in excess of the excretory capacity. It, therefore, collects in the serum in the unconjugated form.

OBSTRUCTIVE JAUNDICE (Clinical features)

There is a gradual onset in this condition. The jaundice is of variable intensity, but with complete obstruction, serum bilirubin levels may be 30 mg per 100 ml or more. The jaundice is usually accompanied by persistent itching. The patient may complain of pain which is due to obstruction by gallstones or by a growth at the head of pancreas. There may be great weight loss in patients in the neoplastic disease. Pale stools and dark urine are universal accompaniments of this type of jaundice. The intrahepatic causes of obstructive jaundice include various drugs (allopathic), one form of viral hepatitis, *i.e.*, obstructive hepatitis and wide-spread of malignant tissue, as is seen with carcinomatosis or Hodgkin's disease.

The physical signs include icterus and hepatomegaly. In chronic cases the spleen may get enlarged and in neoplastic disease enlargement of glands on either side of the neck may be a feature. Rectal examination may reveal secondary deposits in the pouch. It is important to look for the deposits of cholesterol around the eyelids. Masses may be found in the abdomen suggesting a primary neoplasm in the stomach, colon or elsewhere.

Diagnosis :

Characteristically in obstructive jaundice, liver function tests show a raised serum bilirubin of variable extent. The urine contains bile and in cases of complete obstruction is free of urobilinogen. The stools are pale because of biliary pigment and accompanying steatorrhea. It is most important in this kind of jaundice to enquire from the patients, if they have taken any drugs (phenothiazines).

Liver Cell Jaundice**Etiology :**

The usual cause of liver cell jaundice are two, hepatitis, usually due to the virus of infective hepatitis and the action of certain poisons and drugs. A classical example of the latter is carbon tetrachloride. Other examples include the monoamine oxidase inhibitors used in the treatment of depression.

Clinical Picture :

The onset of liver cell jaundice is usually rapid, *i.e.* within a day or two of the onset of disorder. The patient often feels unwell, but, there is no usual persistent itching. The liver may be enlarged or decreased in size and there may be splenomegaly. The basis for the evidence of acute liver cell disease lies in finding out the signs of spider nevae, palmar erythema, gynaecomastia and clubbing. If liver cell jaundice is severe, then the patient may show an evidence of a bleeding tendency and hepatic encephalopathy and oedema formation, the latter being due to a fall in serum albumin levels.

Diagnosis :

The liver function tests show negative flocculation tests, and globulin and raised alkaline phosphatase. In patients with acute liver cell disease there may be leuco-cytosis in the peripheral blood. The urine of patients with liver cell jaundice contains bile pigment and an excess of urobilin or urobilinogen.

Haemolytic Jaundice**Clinical Picture :**

The patient with haemolytic jaundice shows only mild icterus and the urine does not contain bile pigment. It does, however,

contain excessive urobilinogen and may be darker than normal as may be the stools. The liver function tests are normal, unless the patient has developed biliary calculi associated with chronic haemolysis and these may then cause a picture of biliary obstruction raised phosphatase. The patient with haemolytic jaundice may show spleno-megaly and there may be hepatomegaly.

Diagnosis :

Examination of blood will show other features suggestive of haemolysis, such as macrocytes and reticulocytes in the peripheral film. Examination of bone marrow shows evidence of erythroid hyperplasia. Other tests include history of drugs used, examination of the red cells and blood culture.

Treatment :

Let us first note the following analysis before studying indications of individual remedies.

Infantile Jaundice :

- (1) Cham.
- (2) Merc. Dulcis.
- (3) Mercurius Cor.
- (4) Myrica Cerifera.
- (5) Lupulus.

Toxic and Malignant Jaundice. Trotyl. (T.N.T.).

From mental emotions. Bryonic ; Cham. ; Lachesis ; Nux. Vom. ; Podophyllum.

Extention of catarrhal Processes. Ammonium Mur., Chelidonium ; Chionanthus ; Cinchona ; Mercurius ; Dulcamara ; Hydrastis.

By Gastric disturbances. Puls, Ant. Cr., Bryonia, Carbo. Veg., Cham., Nat. C., Nux Vom.

General :

- (1) Rest in bed.
- (2) Diet to be chiefly milk.
- (3) No meat or starch.
- (4) Drink plenty of water.

Curative :

(1) **Bryonia** One of the chief remedies for jaundice brought on by fit of anger. Bryonia patient is chilly, though outwardly he appears hot and there is bitter taste in the mouth ; stools are hard and dry, or, if loose, they are papescent and profuse. There are sharp stitches in the right hypochondrium, worse by motion.

2. **Chamomilla** also has jaundice by anger, but the patient sweats and gets hot.

3. **Aconite**. Fever, restlessness, and anxiety ; pressure of constriction in liver ; white stools with dark-red urine ; slimy stools and constipation alternately.

4. **Chelidonium**. Simple biliousness and jaundice, swelling of liver, chilliness, fever, yellowcoated tongue, bitter taste and craving for acid things ; stools yellow, profuse and loose.

5. **Cinchona**. Jaundice due to sexual excesses or malaria ; long sickness, or gastro-duodenal catarrh ; white stools with flatus.

6. **Chionanthus**. This remedy overcomes catarrh, liquifies bile, prevents formation of calculi. It is highly recommended for jaundice and hepatic pains.

7. **Digitalis**. Jaundice due to liver not taking bile constituent from blood ; drowsiness, bitter taste, soreness, enlargement and bruised feeling in the liver region ; Digitalis is useful in worst forms of jaundice, if pulse is irregular and intermittent, with rapid prostration of strength ; jaundice due to some heart disease with constant nausea and retching.

(8) **Hydrastis :**

- (i) bitter taste,
- (ii) chronic torpor of bowels,
- (iii) lack of appetite,
- (iv) coated tongue and yellow urine,
- (v) due to extension of gastro-duodenal catarrh,
- (vi) great debility and sinking feeling, and
- (vii) light-coloured stools and dark urine.

(9) **Mercurius Cor. :**

- (i) yellow-white coated tongue which takes imprint of teeth,
- (ii) faetid breath from mouth,
- (iii) loss of appetite,
- (iv) depressed and low-spirited,
- (v) clay-coloured stools or yellowish-green bilious stools with great deal of straining,
- (vi) skin and conjunctiva yellow,
- (vii) region of liver is very sore to touch, and
- (viii) itching over the whole body.

(10) **Arsenicum.** For malignant cases due to some liver disease.

(11) **Myrica Cer.** Catarrhal jaundice due to imperfect formation of bile in the liver and not to any obstruction ; dull headache, worse in the morning ; eyes have a dingy, dirty yellowish hue ; tongue is coated yellow ; muscular soreness and aching in limbs ; slow pulse and dark urine ; throat and nose filled with a tenacious, offensive mucous.

(12) **Mer. Dulcis** is almost a specific for catarrhal jaundice.

(13) **Nux Vom.** Jaundice from abuse of quinine induced by anger, sedentary habits, stinging pains and pressure in the liver region ; constipation with urging to stools.

(14) **Phosphorus.** Fatty degeneration of liver with marked soreness and jaundice. The stools are grayish-white. The jaundice is complicated with pneumonia, or brain diseases or nervous excitement.

(15) **Podophyllum :**

- (i) functional torpor of the portal vein and the organs connected with it.
- (ii) constipation, clay-coloured stool, jaundice and languor.
- (iii) complicated with pneumonia or highly-developed affections of the brain.
- (iv) alternate diarrhoea and constipation.

(16) **Pulsatilla.** Jaundice from over-eating.

(17) **Sulphur :**

(i) This remedy often completes the cure started by Nux.

(ii) Sulphur is not indicated, if stools are colourless and much jaundice with ascites is present.

(iii) suitable for chronic affections of liver.

(18) **Nitric Acid.** When jaundice is due to chronic derangement of liver.

(19) **Sepia.** Useful in recurring, frequent attacks of jaundice.

—DISEASES OF GALL-BLADDER AND PANCREAS

General :

The liver secretes about a litre of bile a day. It is secreted at a pressure of 20 cm. of water and if the pressure within the biliary system rises because of obstruction, the secretion of the bile will cease at a level of about 35 cm. of water. In addition to its pigment, bile contains bile salts as conjugates, hormones, such as, thyroxine and steroids, electrolytes and lipids. Bile salts are able to increase the flow of bile and the hormone secretion has a similar effect. Hepatic bile is stored in the gall-bladder. Gall-bladder bile differs from the hepatic variety in being concentrated ten times or so by contraction under the action of the hormone which is released from the upper bowel into blood stream. A fatty meal provides the stimulus for the release of the above hormone.

CHOLECYSTITIS

(acute cholangitis)

Definition and Etiology :

Cholecystitis is an acute inflammation of the gall-bladder which is usually associated with the presence of gall-stones particularly where these produce obstruction of the cystic duct. On rare occasions, the disease may occur without stone formation and then it seems likely that a previously abnormal bladder is the site of blood stream embolization by pathogenic bacteria, particularly *esch. coli*.

Clinical features :

(1) The sudden attack gives pain which is referred to the right of scapula. Though more often colicky, it is a steady pain accompanied by nausea, retching and pyrexia.

(2) The patient lies still and seeks relief from a hot water bottle.

(3) Radiation of pain to the chest or the left side of the abdomen may cause diagnostic confusion with myocardial infraction and left basal pneumonia.

(4) Slight icterus may be present, if bile-duct obstruction has taken place by gall-stones.

(5) Increasing toxæmia, swinging temperature and the presence of a localised mass in the right upper abdomen suggest the presence of empyema of the gall-bladder.

Prognosis :

If perforation, liver abscess, pancreatitis do not appear, recovery is favourable, unless there is a recurrence of attacks.

Diff. Diagnosis .

This has to be made from acute appendicitis, acute pancreatitis, renal colic and pleurisy by noting that in cholecystitis, there is sudden high fever with marked tenderness in the gall-bladder area, high leucocytosis, moderate degree of jaundice with raised bilirubin in urine.

Complications :

The complications include Perforation and gangrene of the gall-bladder and empyema, jaundice and hepatomegaly.

Treatment :

General : (1) Complete rest in bed, hot fomentation is advised.

(2) Diet should be milk and fat-free.

Curative:

(1) **Veratrum Viride.** General congestion anywhere : lungs, liver, gall-bladder.

(2) **Podophyllum**. For chronic congestion of liver and gall-bladder, provided there is diarrhoea. The patient is chilly (*Chamomilla*, if the patient is hot.)

(3) **Bryonia**. The gall-bladder is swollen and congested. It has stitching pains, worse from motion.

(4) **Kali Carb**. Stitches in the region of liver better by motion.

CHOLELITHIASIS

(Gall-stones and Biliary Colic)

Definition :

The precipitation of the biliary constituents, bile pigment, calcium and cholesterol in the gall-bladder or bile ducts give rise to gall-stones. Various types of gall-stones have been described. These are :—

(1) Solitary stones composed of cholesterol and largely radio-translucent.

(2) Bilirubin stones, found particularly where there is increased haemolysis and also radio-translucent.

(3) Mixed stones, consisting of calcium, bile pigments and cholesterol, which are often radio-opaque.

Etiology :

(1) Cholecystitis, *i.e.* infection of the gall-bladder, is the main cause. Bile consists of cholesterol salts and fatty acids. During infection, bile salts are more rapidly absorbed by the gall-bladder, and hence cholesterol, having precipitated, contributes towards the formation of stones. The bacteria, *Esch. Coli*, '*Salm. Typhi*', *Streptococci* or *Staphylococci*, which spread from gastritis, duodenitis, typhoid fever, sore-mouth and throat, are responsible for this infection. The infective agent usually disappears after stones have formed in combination with mucous, pus and tissues.

(2) The concentration of bile is increased during advanced pregnancy, when there is an increased quantity of cholesterol in bile. Hence this is a predisposing cause for the formation of stones.

(3) When the rate of emptying bile from the gall-bladder is relatively slow, there is stagnation of bile, leading to concentration of

the bile fluid. A concentrated bile is sufficiently irritating and favours inflammation, and finally prepares ground for infection and consequent formation of gall-stones.

(4) Overeating, particularly of fats, by persons having obesity and sedentary habits, is another predisposing cause for the formation of stones after having an excess of cholesterol in the gall-bladder.

(5) During the profound dissolution of diseases, such as, pernicious anaemia, black-water fever, and jaundice, a large amount of bile pigment (bilirubin) is liberated. This pigment has a tendency to form bilirubin stones in the gall-bladder and the gall-ducts.

Symptoms :

(1) Excruciating spasmodic pain (Biliary colic) in the right hypochondrium and epigastrium, radiating down to navel, back towards spine, upwards into the chest, to the shoulder-blades, and in some cases even down the arms to the very finger ends.

(2) Vomiting with cold perspiration.

(3) In nervous persons, hiccough, convulsions, fainting and speechlessness is observed.

(4) Cramps in the extremities.

(5) Constipation.

Signs :

(1) Small, frequent pulse.

(2) Sunken face, sunken eyes, pointed nose.

(3) Jaundice, as long as the stones obstruct the biliary duct.

(4) The slightest touch increases pain.

(5) Tenderness over the gall-bladder ; liver often moderately enlarged.

Complications :

(1) Perforation of gall-bladder, or the biliary duct into the peritonium, or the intestine.

(2) Suppurative cholecystitis and pancreatitis.

(3) Cancer may follow in a few cases.

Differential Diagnosis :

This pain is to be distinguished from the pain of a *peptic ulcer*, *hiatus hernia*, or *gastric cancer*, *renal* and other *intestinal* or *pancreatic colics* and sometimes *coronary thrombosis*, which has a characteristic electro-cardiogram. Persistent and recurring jaundice with pain, and enlargement of liver is usually due to the presence of stones in the gall-bladder without colic, cancer of liver, or of pancreas or cirrhosis of liver. The exact diagnosis is difficult.

Treatment :

Curative : (1) **Berberis Vulgaris**. Stitching pains in the region of gall-bladder, shooting up to stomach ; constipation, yellow complexion ; an important remedy in gall-stones and biliary colic.

(2) **Boldea Fragens**. Cholecystitis and biliary calculus ; bitter taste, no appetite, constipation.

(3) **Calcarea Carb**. Gall stone colic ; distention with hardness, partial sweats ; cold, damp hands and feet.

(4) **Carduus Marianus**. Gallstone colic, to be used in tincture ; special indication for this remedy is the presence of liver spots ; another indication is a dark-brown patch over the lower part of the breast.

(5) **Chelidonium**. This remedy causes liver to secrete thinner and profuse bile and helps in the expulsion of gallstones and prevents their formation. The liver symptoms are very prominent. Stitching pains in the liver region, and pain under the angle of the right shoulder blade are characteristic symptoms.

(6) **Chionanthus**. Highly recommended for biliary calculi. Jaundice and hepatic pains are its indications. It liquifies bile, prevents the formation of stones and expels those already formed. The indications are :

- (i) sluggish circulation,
- (ii) sick headache,
- (iii) coated tongue,
- (iv) nausea, and
- (v) complete loss of appetite.

(7) **Cinchona**. It thins the bile and prevents the formation of stones ; sensitive to touch, pain relieved by bending double. Usually give China 6X (twice daily) for 5 days. After this, give such doses on alternate days, then every 3rd day, 4th day, 5th day, and so on till there is a gap of one month.

(8) **Dioscorea**. Almost a specific for gall-stone colic to be given in tincture (20 to 40 drops in 4 oz. of water, a tea-spoonful every $\frac{1}{2}$ an hour). Pain about umbilical region, continuous and constant paroxysms of great intensity, relieved by stretching the body and bending backwards.

(9) **Fel. Tauri**. Liquifies bile ; obstruction of gall-duct ; biliary colic ; jaundice.

(10) **Hydrastis**. Bitter taste ; chronic torpor of bowels, lack of appetite, coated tongue, yellow urine, gall-stone colic (to be used in mother tincture).

(11) **Cholesterinum** 3X. Jaundice : gall-stones ; burning pain in right side ; when walking, the patient puts his hand on the right hypochondrium, as motion hurts him.

(12) **Fabiana Imbricata**. (Pichi) Useful in cholelithiasis and liver affections in tincture doses Excoriating urine and calculi.

(13) **Other Useful** remedies are :

(i) Ether.

(ii) Atropine sulph 3X.

CARCINOMA OF THE GALL-BLADDER

Definition :

Carcinoma of the gall-bladder is a rare occurrence and is usually associated with gall-stones and is observed more frequently in women.

Etiology :

There can be little doubt to the view that chronic irritation due to gall-stones and associated infection, is an important factor in the

initiation of cancer of the gall-bladder and to a lesser degree of the bile ducts. The growth takes place usually at the bottom of the neck of the gall-bladder. This is at first soft, and then becomes hard and irregular.

Symptoms and Signs :

- (1) Loss of appetite, nausea, vomiting and flatulence.
- (2) Progressive emaciation.
- (3) Enlargement of gall-bladder with the formation of a palpable mass of growth.
- (4) Persistent jaundice and ascites.
- (5) Constant pain in the right hypochondrium, sometimes radiating to the right shoulder blade.

Treatment :

See 'Cancer' of Stomach and other organs. Suggested remedies are :

- (1) Cholesterinum.
- (2) Carcinosin.
- (3) Condurango.
- (4) Kali Cyanide.
- (5) Radium.
- (6) Calcarea flour.
- (7) Carbo. an.,

DIABETES MELLITUS

(Glycosuria)

(a disorder of metabolism)

Definition :

Diabetes mellitus is not a disease but includes variety of disorders of metabolism in which there is an excessive proportion of sugar in blood on account of a disorder in the chemical changes of carbohydrates, which form a part of our daily food. This disorder is associated with lack of internal secretion of insulin due to a defect in

the islets of the pancreas. When the carbohydrate metabolism becomes seriously damaged in this way there are naturally abnormalities in the metabolism of fat and protein. The obvious effect, is, therefore, the appearance of glucose and later on acetone bodies in the urine with gradual muscular wasting.

Etiology :

It is yet uncertain how far the pancreas is directly responsible for causing this disease. But there is no doubt that the functional derangement of its internal secretion of insulin is caused by factors probably more than one. In some chronic pancreatic cases, absolute lack of insulin occurs. In others, insulin in excess can be demonstrated in the plasma of diabetics. There are a number of factors which contribute to the development of the diabetic state.

1. **Heredity.** A familial tendency exists. It is probable that diabetes develops at an early age among children of the diabetics. The genetic factors are thus more important.

2. **Age.** The disease may appear at any age but the highest incidence occurs after the age of 40. Thus the disease is mostly among the middle-aged and the elderly.

3. **Sex.** It prevails more among males than females. During the middle age, women are mostly affected. Pregnancy may add to the development of diabetes.

4. **Infection.** These may unmask latent diabetes, especially staphylococcal infections.

5. **Stress.** Earlier physical injury or emotional disturbance is frequently blamed as the initial cause of the disease. A severe stress, such as, a car smash does not cause diabetes though it can change the latent form of the disease into the clinical.

Types of Diabetes :

There are two main types :

1. Juvenile onset type.

2. The adult or maturity onset type.

The first type usually develops among the first 40 years in persons of normal or less than normal weights. The second develops in the middle-aged or elderly persons who are generally obese, in whom glycosuria can be controlled by dietary means alone. Patients of this type rarely develop ketoses.

Clinical Features :

1. Patients are first noted to have glycosuria. Frequently they have no signs and abnormal symptoms.
2. Secondly the patients may present symptoms due to complications, such as, failing vision, peripheral vascular disease, infection of the skin, lungs and urinary tract.
3. Patients who present a condition due to the diabetic state have the following symptoms to begin with—weakness, excessive thirst, and polyuria, a dry **mouth** or nocturia. Loss of weight is common, and may be proportionate to any change in appetite or reduction in the amount of food taken.
4. Pruritus vulvae is a frequent and distressing symptom.
5. Sometimes diabetes may appear as a fulminating disease associated with an acute infection or without any cause, and epigastric pain and vomiting may be the only complaints. This is more likely to occur in the juvenile onset type associated with Keto-acidosis.
6. There may be no signs except glycosuria.
7. Vulvitis with excoriation from scratching may be found or less commonly balanitis in the males.
8. In the fulminating variety dehydration is striking.
9. A dry furred tongue with cracked lips may be found.
10. A rapid pulse and low blood pressure may exist.
11. Breathing is deep and sighing may attract attention.
12. The breath is usually foetid.
13. Coma or stupor may be the ultimate sign.

Complications :

1. Eye complications.
2. Pneumonia.
3. Coronary thrombosis.
4. Pulmonary tuberculosis.
5. Diabetic coma.
6. Hypertension, albuminuria and oedema be present.

Diagnosis :

Diabetes Mellitus is diagnosed from symptoms and signs, such as :

- (i) Polyuria.
- (ii) Increased thirst and appetite.
- (iii) Muscular wasting.
- (iv) examination of urine or glucose tolerance test, showing high blood sugar level.

Prognosis :

Careful dieting and skilled treatment can improve the chances of recovery and no one should really die of this disease. Chronic diabetes, however, is incurable. Complications and early pregnancy makes the prognosis unfavourable.

Differential Diagnosis :

It is to be made from Renal diabetes which has a low sugar content on account of an inborn defect of renal tubular reabsorption of glucose in urine, with normal blood sugar.

Treatment :

Dietary. 1. Carbohydrates not more than 1.5 gm per kilo. of body weight.

2. Carbohydrate and fat ratio should be 2 : 1.

3. Items of carbohydrates may be whole-meal bread ; fish and meat (both lean) should form the proteins.

4. Cooking oil and butter fat are the principal fats. A patient weighing 65 kg. may take 150 gm. of carbohydrates, 70 gm. of protein and 60 gm. of fat which will yield about 1400 calories.

Curative :

1. **Bryonia.** This remedy is indicated in diabetes, when lips are dry (the first symptom of diabetes). Persistent bitter taste. The patient is languid, morose and dispirited. Thirst may or may not be extreme, nor appetite voracious. The patient loses strength through inability to eat.

2. **Lactic Acid.** An exceedingly good remedy in the gastro-hepatic variety of diabetes, and good results often follow its use. The symptoms are : urine profuse and free ; urine light yellow containing glucose ; thirst ; nausea ; debility ; voracious appetite ; constipation ; dry skin, dry tongue, and gastralgia.

3. **Phosphorus.** Useful in diabetes and pancreatic disease, especially in persons of tuberculosis and gouty pre-disposition.

4. **Phosphoric Acid.** Diabetes of nervous origin ; urine milky and contains much sugar ; cases due to grief, worry and anxiety, of those who are indifferent and apathetic, poor in mental and physical force ; curative in early stages with great debility and bruised feeling in the muscles ; loss of appetite ; unquenchable thirst ; occasionally there may be boils on the body ; deposit of phosphates in urine, or large quantities of pale colourless urine.

5. **Plumbum.** One of the most important remedies in diabetes mellitus. Indications are : excessive emaciation ; obstinate constipation ; great hunger ; sweetish taste in mouth ; sweetish belching and vomiting.

6. **Uranium Nitrate 3X.** Diabetes which originates from dyspepsia or indigestion ; polyuria ; dryness of mouth and skin ; it lessens sugar and the quantity of urine ; defective digestion and assimilation ; much sugar in urine ; enormous appetite and thirst, and yet he loses flesh.

7. **Helonias.** Urine contains phosphates and sugar ; diabetes with melancholia, emaciation, thirst and restlessness.

8. **Syzygium**. A palliative remedy and should be used in tincture doses. It diminishes the amount of sugar. Diabetes with ulceration.

9. **Arsenicum**. Diabetes with boils, carbuncles, and diarrhoea.

10. **Natrum Sulph**. A reliable remedy for diabetes with dry mouth and throat in hydrogenoid constitutions.

11. **Insulin**. (3X or 30X). The use of this drug in potentised form has given better results. It should not, however, be overdosed.

12. Other useful remedies for diabetes mellitus are : *Coca 3X*. **Arsenic bromatum** (tincture)—3 drops thrice daily ; **Codeinum 3X**.

PANCREATITIS

Definition & Etiology :

Pancreatitis is the inflammation of the pancreas, which may follow the entry of infected bile into the pancreatic duct, sometimes from the impact of a gall-stone. Frequently pancreatitis is associated with a disease of the biliary system. It may also follow from trauma, or as a complication of mumps, influenza or small-pox. The disease may appear as :

- (i) sub acute pancreatitis, or
- (ii) acute haemorrhagic pancreatitis, or
- (iii) chronic pancreatitis.

ACUTE HAEMORRHAGIC PANCREATITIS

This is often a complication of gall-stones. The entry of infected bile into the common duct may follow the obstruction of the mouth of the common bile duct by gall-stones, or the pancreatic duct by ascaris, or a spasm of the sphincter. The infected bile activates the pancreatic enzymes, and causes auto-digestion of the pancreas haemorrhage, and fat necrosis.

Symptoms and Signs :

- (i) The onset starts with abdominal pain of the utmost severity and is accompanied by a severe shock.

- (ii) The pulse is rapid and thready.
- (iii) The blood pressure is low ; the extremities pale, cold and sweaty, with lips livid.
- (iv) Sometimes the patient suddenly becomes unconscious.
- (v) Vomiting abundant and repeated.
- (vi) Later cyanotic patches may appear over the upper part of the abdomen.
- (vii) The abdomen is very tender, and abdominal muscles rigid.
- (viii) Peristalsis is inhibited.

Diagnosis :

This may be confused with *intestinal obstruction*. In pancreatitis, the shock is severe. There is also a history of gall-bladder disease. Urinary enzymes and glycosuria can be verified by examination.

SUB-ACUTE PANCREATITIS

This condition is similar to the acute form, but the onset is gradual. Collapse is absent, there is usually moderate, or even high fever. There is marked tenderness in the epigastrium and some rigidity of abdominal muscles. The condition resembles acute cholecystitis. *Diagnosis* is confirmed by a slight rise in sugar and enzymes. As the condition improves, a tumour may be felt deep in the abdomen. Recurrent attacks lead to chronic pancreatitis.

CHRONIC PANCREATITIS**Definition :**

Chronic pancreatitis is a disorder of the pancreas characterised by destruction of glandular tissue, the formation of fibrous tissue and calcification. As a result, the pancreas is shrunken and thickened and there is dilatation of the pancreatic ducts. The end picture is one of failure of endocrine and exocrine pancreatic function.

Etiology :

The cause is difficult to determine. In some patients, it is undoubtedly due to chronic alcoholism.

A form of chronic destruction of the pancreas, often painless, is recorded in some tropical areas chiefly East Africa. The cause is unknown though it seems likely that chronic protein malnutrition could at least be one factor.

Hyperparathyroidism may be associated with chronic relapsing pancreatitis and a further form of this disorder has been described as a rare finding in some families where apart from the pancreatic dysfunction, there is urinary aminoaciduria.

Clinical Picture :

1. The course of chronic pancreatitis is usually punctuated by episodes of severe pain, which may be aggravated by a heavy meal or alcohol. It usually lasts for 24 to 48 hours and is not relieved by alkalies or vomiting which accompanies it.

2. The supine position may bring some relief. It is usually felt in the epigastrium and may travel widely in the abdomen and to the shoulders or to the back.

3. Pain may be accompanied by diarrhoea with pale, greasy, bulky stools.

4. Painful eructations are said to be the characteristic symptoms of involvement of the tail of pancreas. In this situation, the patient may be characteristically sitting upwards, leaning forwards or supporting himself with the elbows on his knees.

5. The abdomen is tender but there is usually no frank peritonism.

6. The stools are pale and there may be glycosuria.

Diagnosis :

The following tests will be found helpful in the diagnosis of this disease: A glucose tolerance test may show a diabetic curve or there may be frank glycosuria. Steatorrhoea (passage of more than 6 gm. of fat per day) and undigested muscle fibres on microscopy may be present in the stools.

Treatment :

General : The diet should be poor in fat. It should, therefore, consist of skimmed milk, lean meat, fish, bread, green vegetables and fruit.

Curative :

(1) **Iris Versicolor.** Burning distress in the pancreatic region with vomiting of sweetish water. Saliva has greasy taste. Watery diarrhoea contains undigested fat ; worse in the morning, sick headache may be present.

(2) **Iodine.** Violent pain in the epigastrium and back, soapy taste in mouth ; general enlargement of glands ; copious soft diarrhoea with foamy stools which contain fat.

(3) **Phosphorus.** Fatty degeneration of heart, liver or kidney ; undigested stools containing particles of fat, face is pale-yellow and patient anaemic ; oily stools looking like sago.

(4) **Belladonna.** Catarrh of the pancreatic duct ; in such a condition it should be followed by *mercurius*. *Belladonna* is very efficacious in acute haemorrhagic pancreatitis.

(5) **Atropine Sulph.** Useful in pancreatic disease.

(6) Other remedies are : Calc. phos. : Mercurius ; Pancreatinum.

CARCINOMA OF PANCREAS**(Beta-cell Adenoma)****Definition and Etiology :**

The pancreatic cancer is often a primary growth that involves the head which encircles the duodenum and is seen arising from the epithelia of the pancreatic duct. It is called Beta-cell Adenoma. This is a rare insulin secreting tumour of the beta-cells of the islets. It therefore causes symptoms due to hypo-glycaemia.

Clinical Features :

The growth at the head of pancreas may be long enough to obstruct the pancreatic duct. If this growth presses upon the common bile duct, it causes jaundice. The gall-bladder often enlarges and so also the liver. Signs of deficient secretion of the pancreas are present.

Symptoms & Signs :

Patients with an insulinoma suffer periodic attacks of confusion, diplopia, faintness, and sweating or from frank epilepsy. The other significant feature is that these attacks are followed by the taking of food or glucose.

Diagnostic difficulties may occur with the presence of mental symptoms which are often thought to be due to psychosis or psycho-neurosis.

The tumour produces few symptoms due to its size, though the tumour is malignant in about 15 per cent of cases.

Diagnosis :

This is however made by :

- (1) the persistent dull epigastric pain,
- (2) jaundice,
- (3) deficient secretions, and

(4) gastric or duodenal deformity by palpation and skiagram. In early stages the diagnosis is difficult as the patients are diagnosed as having vasovagal attacks or of black-outs.

Prognosis :

The disease proves fatal in about 6 to 8 months, if not detected and treated in its early stage.

Treatment :

See "Adenoma" in chapter III (Respiratory System).

DISEASES OF PERITONEUM & MESENTERY**ACUTE PERITONITIS****Definition :**

Peritoneum is a delicate serous membrane which lines the abdominal and pelvic cavities, and also covers the organs contained in them. The inflammation and the infection of this membrane with bacteria is termed 'Peritonitis', which is followed by exudation,

either of a serous or a fibrous nature, more or less mixed with blood. Ultimately, the exudation may be transformed into pus in a few malignant cases. Peritonitis seldom involves the whole membrane. It is frequently partial, and attacks portions covering the liver, the spleen, the kidney, the uterus, or a portion of intestine in combination with diseases of these organs. As such, it may either be *acute* or *chronic*.

Etiology :

It is caused by various bacteria or certain toxins. Usually *Esch. Coli* and sometimes *streptococci*, *staphylococci* or *pneumococci* and occasionally *gonococci* and *Salm. Typhi* are the organisms that are responsible for its appearance. Commonly, it is an extension of inflammation either

(1) from appendix, gall-bladder, gastric, or intestinal ulcer, or diverticulum, etc. or

(2) a rupture or perforation of an internal organ, containing a septic focus. Occasionally, it may be a blood-borne infection from septicaemia or an abdominal wound.

Types :

(1) **Acute diffuse type.** In this type a large portion is involved & the attack is sudden. A severe abdominal pain starts (which may be colicky), associated with collapse.

(2) **The gradually spreading type** has a localised focus, as in appendix or uterus, etc.

(3) **The septicaemic type** is pneumococcal, streptococcal or gonococcal.

(4) **The chronic type** may be tuberculous, malignant or adhesive.

Symptoms :

(a) Diffuse Type :

- (1) Nausea and persistent vomiting.
- (2) Distention.
- (3) Thirst and severe abdominal pain which is localised.
- (4) Constipation (a total blockade).

Signs :

(1) Respiration is feeble and quick ; skin is cold and clammy, pulse quick, and appearance pinched, abdomen stiff and tender.

(2) Blood examination shows increase of white cells.

(b) Spreading Type :**Symptoms :**

(1) Pain localised and moderately intense.

(2) Tenderness.

Signs :

(1) Muscular rigidity.

(2) Intestinal paralysis.

(3) Septic complications may follow, and then there may be chill and fever.

Prognosis :

Prognosis of the diffuse and spreading types is not quite favourable. The septicaemic type may prove favourable, provided it is not of a diffuse type.

Differential Diagnosis :

This disease is to be distinguished from intestinal obstruction, pneumonia, pleurisy and pancreatitis by its characteristic symptoms of :

(i) associated tubercular infection,

(ii) irregular masses palpable in abdomen,

(iii) skiagram may show glands,

(iv) the ascitic fluid shows presence of lymphocytes,

(v) occasional presence of tubercles in sputum, faeces and vaginal discharge and by culture of ascitic fluid.

Treatment :

General : (1) Perfect rest.

(2) Hot applications over the abdomen.

(3) Bits of ice to be given to check vomiting.

(4) Liquid diet till the patient has fully recovered.

Curative :

(1) **Aconite.** This remedy is useful in earlier stages when the predisposing cause is exposure to cold. The indications are intense fever with violent peritoneal pains ; restlessness ; tossing about ; swollen abdomen ; cutting, burning and tearing pains.

(2) **Fer. Phos.** also works at th's stage.

(3) **Belladonna.** Distressful retching and vomiting even of bile ; sensation as if bowels were grasped or clawed, and there is violent pressure towards genitals ; uneasiness is shown by constant change of position which gives no relief ; abdomen intensely hot, the heat of the body seems to rise up with the raising of bed clothes ; swollen abdomen, which is as tense as a drum ; very sensitive to touch.

(4) **Atropine Sulph 6X.** In case Belladonna fails, this remedy will prove useful in secondary peritonitis.

(5) **Bryonia.** Peritonitis of the serous type at the second stage, if diarrhoea is not present. It is indicated, when fever is violent with burning heat all over and the excitability of the nervous system is marked. Violent thirst for large quantities of water, but probably vomited soon after ; alternately chilly and hot ; sharp stitching pains in the abdomen, worse from pressure and motion ; abdomen swollen ; constipation ; yellowish-gray complexion.

(6) **Lachesis : Mild form of peritonitis ;** fever is worse at night. The slightest touch to the surface of the body is unbearable. Tenderness at one spot and typhoid symptoms are present. It follows *Bell.* well.

(7) **Mercurius Sol.** To be given when suppuration has commenced, and the abdomen is tympanitic, showing evidence of effusion which is partly serous and partly purulent, and the patient has rigors and sweat. Nocturnal aggravation, desire for cold water, rumbling of bowels ; and diarrhoeic stools are characteristic. Frequent fever with creeping chills and copious perspiration which does not relieve are other valuable indications.

(8) **Mercurius Cor** is indicated in purulent cases and not in serous cases.

(9) **Rhus Tox.** In peritonitis with a typhoid tendency when fever is high and tongue is dry, the tip is red, the skin is also dry, and there is great weakness, swelling in abdomen ; diarrhoea which has been preceded by constipation.

(10) **Arsenic Iodide** suits tubercular types. This should be given immediately after food.

(11) Other remedies may be :

(i) **Apis** (Effusion stage).

(ii) **Sinapis Nigra** (Extension to Pharynx).

(iii) **Wyethia** (Extension to Pharyngitis).

(iv) **Carbo. Veg** (Threatened collapse).

(v) **Nux Vom** (After the appearance of effusion to improve the work of the bowels).

(vi) **Opium** (for the paralytic weakness of the intestine).

(vii) **Sulphur** (To absorb pus).

(viii) **Terebinthina** (For suppression of secretion).

(ix) **Arsenicum** (For persistent vomiting and copious exudate and violent burning).

(x) **Ver. Alb** (Collapse with cold sweat on the forehead and burning in the abdomen).

ASCITES

Definition :

Ascites is an accumulation of free fluid in the peritoneum cavity characterised by a yellow or yellowish green color, and, if blood is mixed with it, of a reddish color, containing a great deal of albumen, saline constituents and flakes of coagulated lymph. The peritoneum is opaque, thickened, but without any sign of inflammation. The term "Ascites" is sometimes applied to the fluid accumulation in the abdomen in cases of chronic peritonitis (tuberculous or malignant). When fluid is less than one litre, the fluid may cause no sign or symptoms.

Etiology :

Ascites, which is also termed dropsy of the abdomen, is not a 'primary disease'. It is a consequence of the morbid conditions of lungs, heart, kidney and those above the liver and outside the hepatic region, *e g.*, cancer of stomach. The fluid collects in the peritoneum in conditions which are mostly associated with hypertension in the portal system, due particularly to cirrhosis of liver, right heart failure, and occasionally thrombosis of the portal or hepatic vein, and pressure on the Vena cava above the entrance of the hepatic veins may also be responsible. Obstruction in the Vena porta, by growth or in cirrhosis of liver, causes a marked increase in lymphatic drainage which leads to the collection of fluid in the peritoneum sac.

The cause of this obstruction may be :

- (i) within the liver, such as cirrhosis, hepatic congestion or cancer ; or
- (ii) outside the liver, such as, cancer of stomach, duodenum. or other tumours.

Symptoms :

- (1) Enormous distention and a feeling of weight and fulness.
- (2) Scanty urine and stool.
- (3) Dyspnoea and palpitation of heart.

Signs :

- (1) Dull percussion sounds which vary in different positions of the patient.
- (2) The fluid is usually clear and light yellow, or yellowish-green, when examined.
- (3) Oedema or dropsy of legs and feet occurs in ascites, caused by portal obstruction.
- (4) Ascites in jaundice in old persons means cancer of liver or peritoneum.
- (5) Ascites with sallowness of skin means alcoholic cirrhosis of liver.

(6) **Ascites** due to obstruction of the thoracic duct or other major lymphatics in the root of the small bowel may give rise to chyloric ascites. This is milky and contains fat particles.

Prognosis :

This depends entirely on the nature of its cause. If the cause is not removable, it is hardly expected that it will be favourable.

Treatment :

(1) **Apis Mellifica.** The indications leading to its selection are : Puffiness under the eyes ; sore bruised sensation over the whole body ; skin pale and transparent ; scanty urine ; possibly a nettle-rash on the body ; thirstlessness. Ascites in acute cases without fever, due to infective fevers.

(2) **Acetic Acid.** Ascites with great thirst, sour belching, waterbrash, diarrhoea and a broken-down constitution ; waxen, emaciated, alabaster skin.

(3) **Apocynum Cannabinum.** It is a palliative remedy for swelling anywhere when there is no organic disease ; the special symptoms are : gone-feeling at the pit of stomach ; the patient cannot tolerate food ; great thirst, but drinking causes distress ; irregular heart ; torpidity and slow pulse. It does not help in the increased secretion of urine in small doses.

(4) **Arsenicum.** A very suitable remedy for all kinds of dropsies with following indications, particularly those connected with disorders of heart, lungs, and kidneys ; puffiness of face with oedema about the eyelids,

(ii) waxy transparent skin,

(iii) thirst,

(iv) vomiting,

(v) ulcers forming on legs.

(5) **Digitalis.** Cardiac dropsies with feeble irregular heart and a sensation that the heart was not moving with a desire to take deep breath ; scanty, dark, albuminous urine ; slow, intermittent pulse ; scrotum and penis swollen ; cold sweat.

(6) **Pulsatilla.** Ascites due to menstrual difficulties at puberty or menopause.

(7) **Sulphur.** From suppressed skin eruptions.

(8) **China.** From debilitating diseases.

(9) **Colchicum.** Dropsy with urine containing blood and albumin.

(10) **Helleborus.** Useful in ascites when there is :

(i) jelly-like diarrhoea,

(ii) dark scanty urine,

(iii) great debility,

(iv) no thirst,

(v) sense of coldness in the bladder region, worse walking.

(11) **Lycopodium.** Ascites in liver diseases. The Lycopodium patient is thin, withered, full of gas and dry. Besides, there are digestive and urinary disorders, emaciation and debility in the morning, worse between 4 and 8 p. m.

(12) **Iodine :**

(i) Excessive loss of weight. (ii) Urine is dark and scanty.

Tuberculosis of the mesenteric lymph nodes (bowel)

Definition and Etiology :

A large fold of peritoneum, a serous membrane passing between a portion of the intestines and the posterior abdominal wall is called the mesentery, which contains lymph nodes. Tuberculous disease of these lymph nodes is very common among children and even among adults. The incidence of the disease is falling because of the universal adoption of pasteurisation of milk as this is the source of the bovine tubercle bacillus. The tubercle bacillus gains entry through the small bowel, where it may occasionally cause ulceration or more rarely granulomatous induration of the bowel.

Symptoms :

The symptoms are not distinctive and consist of attacks of central abdominal pain, nausea, vomiting and alteration of bowel habit (usually constipation). There is associated hypertrophic granulomatous disease of the bowel present and then there may be a mass in the right iliac fossa due to the involvement of ileum and caecum.

Diagnosis :

Helpful diagnosis is the X-ray which will show enlarged glands when they are calcified. The examination of the faeces for the tubercle bacilli will clear the diagnosis.

Treatment :

See under "Tuberculosis of Bowels".

CHAPTER—V

EXCRETORY & REPRODUCTIVE SYSTEM

EXCRETORY SYSTEM

NORMAL RENAL FUNCTIONS

The primary function of the kidney is to maintain its homeostasis *i.e.* the constancy of the internal environment. This main excretory organ of the body acts under the influence of the endocrine glands or through complex physical and chemical regulatory mechanism. Thus the excretion of the waste products, such as urea, although an essential role of the kidney is of minor biological importance compared with its contribution to homeostasis. These various regulatory functions include volume control of body, water osmotic control of the extracellular fluid, acid-base balance, body concentration of individual electrolytes, arterial blood pressure and possibly erythropoiesis.

The most important function of the kidney is the elimination of waste products and excess water from the body *i.e.* excretion. The vast majority of substances, normally eliminated in the urine are brought to the kidney already collected in the blood. In transferring them from blood to urine, the kidney merely alters their relative concentration and does not change them materially. Concentration, then, is the essential process of excretion by the kidney and is by far its most important function. Normal renal function means ability to concentrate it to normal degree and failure to do so constitutes impairment of renal functions. The concentrating ability is directly proportional to the number of nephrones which are slightly less than one million in each adult human kidney.

II-SYMPTOMS & SIGNS OF BLADDER DISORDERS WITH TREATMENT

The Symptoms include the following abnormalities in urine :

(i) Polyuria :

Causes :

Common causes for *pathological increase of urine* are diabetes mellitus, diabetes insipidus, chronic nephritis, hypertension, excessive thirst, hyperparathyroidism and hysteria.

Treatment :

See under various ailments referred to above, and note the following also :

(1) **Scilla.** Pale urine excessive in quantity.

(2) Other remedies are : **Argentum** ; **Phos acid** ; **Urtica urens** ; **Rhus Aromatic** ; **Murex**.

(ii) Oliguria :**Causes :**

The *pathological diminution* or *scanty flow* is due to acute nephritis, severe gastro-enteritis, low blood pressure, less intake of fluids, exposure to high atmospheric temperature, excessive sweating, diarrhoea, high rise of temperature, fevers of all kinds, and heart diseases.

Treatment :

See under the relevant diseases and also note the following :

(1) **Apis.** Scanty flow with high coloured urine, with burning and soreness, when urinating.

(2) **Clematis.** Flow interrupted by spasm of urethra.

(iii) Dysuria & Strangury :**Causes :**

Painful and difficult micturition, particularly in drops, is noticed, while urinating in urethritis or gonorrhoea, ulcer or urethral caruncle, or in impacted stone, in cystitis, prostatitis, stone in bladder, injury, hysteria etc.

Treatment :

(1) **Equisetum.** Difficult urination after confinement.

(2) **Staphysagria.** Strangury in young married women.

(3) **Kreosotum.** Urination is so difficult that one has to lie down.

(4) **Chimphilla.** The child must stand with feet apart to urinate.

(5) **Aconite**. Must strain when urinating. (*Alumina*, if it fails).

(6) **Muriatic Acid**. Difficult urination with prolapsus ani.

(7) **Conium**. Difficult urination with uterine or prostatic disease.

(8) **Camphor 1X**. In acute cases, give a drop every 5 minutes in sugar.

(9) **Cantharis**. In cases, where there is burning with inflammatory symptoms.

(10) **Belladonna**. In purely nervous cases.

(iv) **Ischuria** ;

Causes :

In *Ischuria*, the kidneys function well, but the *urine is retained* in the bladder, which distends, and is sometimes mistaken for a tumour. The causes for this condition are :

An obstruction in the passage, due to either gonorrhoea or an injury, and progressive narrowing of the urinary stream from phimosis, prostatic enlargement, impacted stone, tumour, or retroverted uterus. Other causes are nervous, e.g. motor paralysis, neurosis, and spasm.

Treatment :

(1) **Camphor 1X**. Retention from cold (*Terebinthina Q*, if this does not suffice).

(2) **Aconite**. If there is fever with restlessness.

(3) **Nux Vom**. For spasmodic retention.

(4) **Ignatia**. Hysterical and nervous causes.

(5) **Opium**. Paralytic causes or after operation.

(v) **Incontinence (Enuresis) :**

Definition & Causes :

Incontinence or enuresis is the inability to retain urine. In true incontinence, the bladder is always empty and the urine is constantly dribbling. This lack of control may exist in encephalitis, paralysis of the insane, epilepsy, and poisoning.

In false incontinence, the bladder is overful, and is in a spasmodic condition to be forced open to cause an overflow. In automatic incontinence, the bladder when full, opens unconsciously.

Enuresis. This name is generally given to infantile incontinence where the bladder is emptied unconsciously during sleep at night. Its causes may be tonsilitis, thyroid deficiency, phimosis, intestinal worms, vulvitis, cystitis and oxaluria. Read Chapter X also on "Nervous system."

Treatment (as recommended by Dr. Hering)

(1) **Pulsatilla.** For tender, gentle children inclined to weep whose urine is offensive, and who sleep on their belly, and who put their hands on the abdomen, or both arms above the head.

(2) **Belladonna.** For children who do not sleep on the back and cry easily, and who sleep with their arms over the head, or lie upon the belly. For children who wet the bed during the day, or when the urine is pale and watery, or if they perspire and take cold easily.

(3) **Ferrum.** Involuntary urine, worse in day-time; children who are sleepy the whole day, or sleep early at night and do not like to get up early in the morning; children who catch cold easily and suffer from diarrhoea or cough. This remedy is more for pale, thin, and chilly children.

(4) **China.** If the face turns red easily and the child puts arms over the head, and is restless at night.

(5) **Calcarea Carb.** For stout, fatty children who drink much and perspire easily, especially, if they scratch their heads, when awaking at night; involuntary urine at night. *Sulphur* should be tried first and if that remedy does not suffice, *Calcarea* should be given. Remember that Sulphur children do not like to be washed, and cry when bathed.

(6) **Mercurius Sol.** For easily perspiring children who have great desire for butter, and if the urine is hot, acrid and sour.

(7) **Silicea.** For involuntary urination, if it comes after vaccination or when wounds heal slowly.

(8) **China.** If children bend their heads when asleep, or itch their nose during sleep.

(9) **Causticum.** For children who wet their bed in first sleep. The urine is acrid. They frequently urinate during the day and night and also while coughing, sneezing, walking etc. These children generally evacuate the bladder while standing.

(10) **Arsenicum.** When children sleep lying on their backs and the urine is hot, and of a putrid smell.

(11) **Hepar Sulph.** When urine is hot and acrid and the head is bent backwards in sleep.

(12) **Carbo Veg.** When the urine is offensive.

(13) **Dulcamara.** When wetting the bed follows some painful disease, and the urine is offensive.

(14) **Colocynth.** When children turn over upon the belly during sleep and urine is sticky.

(vi) **Anuria :**

Definition & Causes :

Anuria *i.e.* the suppression of urine signifies that water is not secreted by the kidney, or it cannot enter the bladder. It may be due to an obstruction, either in the kidneys, or in the ureters. The block may be due to a stone, cancer of the bladder, or tumours in the urinary tract. But there may be anuria without renal obstruction or a kidney disease also, *e.g.* in nephritis. Anuria may also follow gastro-enteritis, profuse bleeding, severe burns, injury, or an acute infection.

Suppression of urine causes pain in the loins, in the kidneys, in the pancreas, in urinary bladder, and urethra.

Treatment :

(1) **Camphor.** Suppression from cold.

(2) **Terebinthina.** If urine does not flow within one or two hours of suppression.

(3) **Aconite**. When there is fever, anxiety, and restlessness.

(4) **Nux Vomica**. For spasmodic suppression.

(5) **Ignatia**. For hysterical cases.

Signs :

(a) These are dependent on the physical examination of the kidneys and (b) urine.

KIDNEYS

(Physical examination)

(a) By Inspection :

The patient should be made to lie down with legs drawn-up, and then examined :

(i) If there is a swelling in the front side, it may be due to a malignant growth.

(ii) The swelling on the backside in the lumbar region means an abscess which may be more prominent in a sitting posture.

(b) By Palpation :

The kidney is palpable, when it is either displaced or enlarged. At the time of examination, the patient should lie down on the back with legs drawn-up and breathe deeply, and then the kidney be palpated with the two hands. If there is any enlargement and displacement, the palpation will give pain, which may be associated with nephritis, cystitis, abscess, or renal failure, and also after an attack of renal colic.

In an enlargement, the observer should note :

(i) its size and shape,

(ii) softness or hardness of the kidney,

(iii) whether it is fluctuating or cystic, regular or irregular in outline.

(c) By Percussion :

This is to be done for the presence of a possible renal tumour which generally occupies the side, and is more or less fixed and

does not move with the respiration. On palpation, the tumour has the shape of the kidney, and on percussion, colon resonance is obtained in front of it.

EXAMINATION OF URINE

Attention should be paid to :

- (a) Abnormal quantity, either increased, or diminished considerably,
- (b) transparency,
- (c) odour,
- (d) Character of depositis.

Abnormal quantity :

(i) Normally very much more urine is secreted during the day than during the night.

(ii) In chronic renal diseases, the proportion of the day to night urine is particularly abnormal. It may be 100 to 200 Oz. The solids are also increased in proportion to water.

(iii) Physiologically, increased secretion of urine occurs after increased consumption of food or drink, and after exposure to cold. Diminished secretion takes place when little food and drink has been taken, and after exposure to heat.

(iv) A pathological increase (polyuria) in urine occurs in diseases like granular kidney, in both forms of diabetes, during absorption of sweat, and in some neurotic conditions like hysteria ; while diminution of urine (oliguria) is to be found in lowered arterial pressure, or when the pressure in the kidney is increased, as in acute nephritis, and in advanced mitral disease ; in acute fevers ; in diarrhoea, vomiting and in cerebral irritation (concussion).

Colour and Transparency :

Normal urine has the colour of amber or pale sherry. But it varies even in health, because it depends upon the dilution and the reaction. Acid urine is always darker than the one which is alkaline.

In febrile and some other diseases, the urine is warm and has orange colour. Usually it shows a dull pink colour.

Normally urine, when freely passed, is quite transparent but it can be opaque in the presence of substances in suspension, or bacteria. A smoky urine is due to the presence of small quantities of blood.

Odour :

Normal urine has a characteristic aromatic odour. When urine is allowed to stand for sometime, the odour becomes ammoniacal. Excess of acetic acid in urine gives it a fruity odour. In diabetes, the odour has been compared to that of a new-mown hay.

Character of Deposits :

Naked eye can observe urinary ingredients in the form of deposits. These deposits are.

(i) Mucous, phosphates, uric acid, and urates. Sulphates never form these deposits, but oxalates do, though the deposits in the latter case are scanty and sometimes mixed with mucous.

Renal Function Tests :

Renal Function Tests are important for chiefly determining and solving the following problems :

(i) Does albuminuria point to nephritis or a permanent renal damage ?

(ii) What is the type of nephritis in the affected area ?

(iii) If there is any essential hypertension ? Is there any renal failure ?

The following tests will help the diagnosis :

(a) *General Examination of Urine* : This examination will determine the presence of protein, casts and cells, together with the volume of urine passed by day and by night, and the specific gravity of the day and night specimens. Persistent low specific gravity, normal being 1015, will indicate a renal damage.

(b) *General Examination of Blood* : If the blood examination points to an increase of urea and non-protein nitrogen in blood,

the condition indicates malignant nephrosclerosis and acute nephritis. A considerable increase will render the prognosis more unfavourable and suggest a possible danger or uraemia.

(c) *The Water Concentration Test* : This test is performed in the following manner. A day before the test, the patient drinks nothing after lunch. The evening meal is also dry and consists of only proteins. The urine passed at night is discarded. The bladder is emptied at 7 a.m., but the urine passed is discarded. The urine is collected at 8 a.m., 9 a.m. and 10 a.m. Normally the specific gravity of at least one of these specimens ought to be over 1025. If not, the kidney function ought to be disturbed.

(d) *Water Examination Test*. No water and food is given after 8 p.m. on the previous day. After emptying the bladder next morning at 7 a.m., 1250 ml. of water are given to drink. The urine is passed out one-hourly four times. The total volume of the four specimens for a normal condition should be over 80% of the fluid taken and the specific gravity should be at least 1003.

(e) *Blood Urea Concentration Test* : The patient on empty Stomach is first made to pass urine, and then 15 gm. of urea dissolved in 100 gm. of water is given by mouth. The urine is collected one, two and three hourly. The first sample should contain at least 15% and the second or the third 2% of urea. The absence of this quantity will point to chronic nephritis. It must be noted that it is essential for the patient to take as little fluid as possible for 18 to 24 hours before the test is performed. Forced diuresis (increased secretion of urine) tends to prevent the concentration of urea.

(f) *The Pigmentary Tests* : (injection of dyes). These tests are applicable, if there is no blood in the urine, and are chiefly valuable in determining separate function of each kidney. The urine is collected by catheters at regular intervals after the dye has been injected. The kidney that shows poor colouration of urine is inefficient.

For all practical purposes, the reliable tests are only from (a) to (e).

IMPORTANT SIGNS AND SYMPTOMS OF RENAL DISORDERS

III-Abnormal constituents of urine Haematuria

Blood including haemoglobin is found in urine on a wide variety of clinical conditions. Haematuria indicates generally serious disorders of the urinary tract for which cause should always be sought. If an episode of haematuria is neglected, the case may advance to an incurable stage. The appearance of urine varies with the amount of blood in renal haemorrhage. The blood is smoky and is thoroughly mixed with urine. In haemorrhage from the bladder, it is not so thoroughly mixed with urine and is discharged with the last portion of the urine. In haemorrhage from the urethra, blood cozes out without passing water and is generally caused by external injuries.

Causes :

Red blood cells are found in varying number in the urine in the following diseases :

- (A) (1) From Kidney. Inflammatory diseases, for example, nephritis, tuberculosis, pyelitis.
- (2) Traumatic. For example, calculus, injury and oxaluria.
- (3) Growth. Malignant-carcinomas-sarcoma, benign-papilloma.
- (4) Blood diseases. Purpura, scurvy, haemophilia.
- (B) From the Ureter. Papilloma.
- (C) From the Bladder. Papilloma, carcinoma, acute cystitis, injury, tuberculosis.
- (D) From the Urethra. Trauma, acute nephritis and calculus.
- (E) From diseases outside the urinary tract-prostate, appendix, pelvis, uterus, rectum, caecum, sigmoid colon, diverticulitis, menstruation, cervicitis, balanitis.

Occasionally haematuria may occur without demonstrable causes. This has been designated as essential haematuria. A similar idiopathic haematuria occasionally occurs in families.

Treatment :

- (1) **Aconite.** Flow of bright red blood with fever and anxiety calls for this remedy.
- (2) **China off.** Dark, clotted blood from any orifice of the body, provided the flow is profuse, so profuse that it may cause fainting and ringing in ears and the patient requires to be fanned.
- (3) **Erigeron.** Bright-red clotted flow of blood, associated with sudden gush, then a stop, followed by a lumpy dark flow.
- (4) **Hamamelis.** Passive venous flow of blood exhausts the patient greatly. The parts affected feel bruised and sore with a dull renal pain.
- (5) **Cantharis.** Violent cutting, pressing and crampy pains in the bladder, extending into urethra and into kidneys ; frequent efforts to void urine without much exertion ; burning pains before, during, and after micturition ; cylindrical exudations in urine, pain increased by drinking water, even from the sight of it.
- (6) **Ocimum Can.** Haematuria with red sediment calls for this remedy.
- (7) **Terebinthina.** The blood is thoroughly mixed with urine, forming a dirty reddish-brown or blackish fluid or a coffee-ground-like sediment ; pressure in bladder extending upto and into kidney, when sitting, disappearing when walking ; haematuria from venous congestion, having burning and most painful stranguary during micturition ; urine may contain albumin, and has the odour of violets.
- (8) **China Sulph.** Haematuria without pain or uneasiness.
- (9) **Arnica.** Haematuria from mechanical injuries.
- (10) **Thlaspi.** Dark, thick urine.
- (11) **Ipecac.** Haematuria with bright blood and persistent nausea.
- (12) **Phosphorus.** It has great vesical tenesmus, burning and bloody urine in complication with any renal or other disease.
- (13) **Kali Phos** is another appropriate remedy for urinary troubles including haemorrhage.

PROTEINURIA

(Albuminuria)

The presence of proteins in the urine is always of clinical significance. This abnormality usually occurs in disease of the lower urinary tract, though a small amount may be detected in severe urinary infection or obvious haematuria. It invariably indicates the presence of parenchymal disease of the kidney, but its magnitude bears little relation to the degree of renal failure. In the absence of the inflammation in the urinary tract, the protein is derived from plasma proteins which have been filtered by the glomeruli. Because of the smaller molecular size, albumin predominates over the globulins.

Causes :

Albuminuria is met within a great variety of physiological and pathological conditions. Thus, it always accompanies prolonged violent exertion, as in footfall and rowing, and may be caused by cold baths and emotional stress. It frequently occurs with acute infections of all kinds, especially if pyrexia is present, and in passive congestion of the kidneys, in heart failure and after convulsions, as in epilepsy.

Treatment :

(1) **Arsenic Album.** When urine contains much albumen in Bright's disease and the patient has a waxen pale look.

(2) **Apis Mel.** Albuminuria following scarlatina, with scanty, frequent urine and dull pain in the kidney.

(3) **Mercurius Cor.** Albuminous nephritis of pregnancy.

(4) **Kali Chloricum.** Scanty dark, albuminous urine containing casts.

(5) **Terebinthia.** When urine is bloody with albuminuria (Lyci if it fails).

(6) **Glonoine** has albuminous urine ; useful sometimes in acute and haemorrhagic nephritis.

(7) **Phosphorus**. Urine scanty and albuminous, pulmonary complications, and nervous irritation.

(8) **Belladonna**. Simple albuminuria, when the kidney is inflamed with pains in the lumbar region.

(9) **Calcarea Phos**. Albuminuria with anaemia and progressive emaciation and debility.

PYURIA

(Pus in Urine)

Definition :

Pus in urine denotes pyuria. This pus may be present in urethra, prostate gland, bladder or the kidneys. It is mixed with urine which grows turbid, or forms a thick ropy sediment according as the quantity is moderate or excessive.

Causes :

The following may be the sources of pus :

(i) kidneys (renal) on account of pyelitis, suppurative nephritis, stone and abscess,

(ii) bladder (vesical) due to cystitis, calculus, tuberculosis, new growths (ulcerated), amoebiasis,

(iii) the prostate due to prostatic abscess and stone,

(iv) urethral canal as a result of urethritis (gonorrhoea) or *B. Coli*,

(v) other neighbouring organs, containing pus focus such as, metritis, appendix, and the alimentary canal.

Distinguishing Factors :

(i) Pus thrown out in the beginning of a discharge mostly from urethra and acid in reaction, indicates urethritis and prostatic or perineal (Pertaining to the space between anus and scrotum) abscess.

(ii) Pus at the conclusion of urine, or well mixed with the alkaline urine, is from the bladder in cystitis.

(iii) Pus thoroughly mixed with acid urine, is probably from the kidney.

Characteristic Features :

(i) Pain and tenderness in loins, in hypogastrium, in perineum, or in urethra.

(ii) microscopic and cultural examination of urine and of blood will diagnose the pus element.

Treatment :

(1) **Barosma Crenata (Buchu)**. For muco-purulent discharges from the irritable bladder, with vesical catarrh and prostatic disorders. It has to be used in tincture doses.

(2) **Benzoic Acid**. Offensive urine of repulsive odour, acid in reaction with excess of uric acid ; vesical catarrh from suppressed gonorrhoea. The smell is ammoniacal, like that of horse urine, and resembles the colour of beer.

(3) **Cannabis Sativa**. Urine is loaded with slimy mucus. The patient must strain ; stitches and burning in urethra, dull pain in the region of the right kidney.

(4) **Cantharis**. Pus in nephritis (from kidney), urine jelly-like, shreddy.

(5) **Chimaphila Umbellata**. Scanty urine, loaded with ropy, muco-purulent sediment, acute prostatitis.

(6) **Epigea Repens**. Tenesmus after micturition ; fine sand in urine of brown colour.

(7) **Kali Bichromium**. Burning in urethra ; ropy mucous in urine, albuminous urine ; in pyelitis, when urine is mixed with mucous, pus or blood.

(8) **Other Remedies are**, Mercurius Cor., Hepar Sulph., Lycopodium, Phosphorus, Populus Tremuloides (Cystitis or prostatitis), Uva ursi (calculus, pyelitis).

HAEMOGLOBINURIA

Definition :

Haemoglobinuria is the result of a mixture of haemoglobin with urine, caused by the dissolution of blood in the urinary tract.

Causes :

The causative agent is probably set free on exposure to cold which, on return to warmth, is made active, and destroys the red blood vessels. Haemoglobinuria may also be caused by the transfusion of incompatible blood, extensive burns, severe anaemia, ingestion of certain beans, or certain fish, irritating drugs, and snake and spider poisons. Urine does not contain any red-blood corpuscles, but only haemoglobin. This condition is especially found in *black water fever* which is also called "*Haemoglobinuric fever*". It may be :

- (1) paroxysmal as in Raynaud's disease, or syphilis,
- (2) toxic, as in blackwater fever.

Diagnosis :

It is to be made by the microscopic, chemical, and spectroscopic examination of urine.

Differential Diagnosis :

In Haematuria. The colour of urine is red or smoky. Jaundice is absent. Red blood cells are seen under the microscope. When kept standing, the urine becomes clear.

In Haemoglobinuria. The colour of urine is port-wine like. When kept standing, the upper fluid remains coloured. No R.B.C. are seen under the microscope.

Treatment :

Remedies in general are :

- (1) Uric acid 3X.
- (2) Phosphorus
- (3) China Sulph
- (4) Picric acid
- (5) Arsenicum Hydrogenisatum
- (6) Kali Chloride
- (7) Natrum Nitricum.

CHYLURIA

Definition :

Chyluria denotes the passage of chyle in urine. Chyle is a fluid of undigested fats which, as an alkaline milky fluid, passes from the small intestine via the lymphatics to the blood stream. So chylous urine contains large amounts of albumin and fat and may be translucent, milky-white, or pinkish-white on account of blood, or have the consistency of thick cream. Such a urine is usually passed by a patient suffering from filaria.

Causes :

Chyluria results from an obstruction in the lymphatics between the intestine and the thoracic duct which conveys chyle from the abdomen to the left vein. The commonest cause of this obstruction is the reaction, produced by the filarial worm, *W. Bancrofti*. Other conditions favouring this obstruction are growths and infections, especially tuberculosis, and occasionally pregnancy, but rarely trauma.

Characteristic Features. The only constant feature is the passage of milky white urine. The onset is usually sudden. Chyluria may persist for years without endangering or weakening the health of a patient. Its admixture with blood gives urine a pinkish colour. The amount of chyle in urine is increased by exercise, or by a high fat diet. Renal function is not affected. Other symptoms, if present, are due to underlying diseases.

Treatment :

General : Low fat diet should be given.

Curative :

(1) **Iodium 3X.** Milky white urine or chylous urine.

Other remedies Are. Eupatorium Purp., Lilium Tig, Mercurius Cor., Phosphoric Acid, Viola odorata.

IV. DISEASES OF THE KIDNEY AND BLADDER

PYELONEPHRITIS

(Acute Pyelitis)

Definition :

The condition is characterised by an acute inflammation of the parenchyma and pelvis of the kidney. The term pyelitis is still used frequently, but, the inflammation involves both the renal tissue and the pelvis. The disease may be bilateral or unilateral.

Etiology & Pathology :

The renal pelvis is acutely inflamed and there is often a coincident inflammation of the bladder. So small abscesses may be seen on the surface of the kidney, when the capsule has been stripped. On a cross section, small abscesses and streaks of pus in the medulla are often evident.

Acute pyelonephritis is an infection commonly associated with some obstruction in the urinary tract. In men, this is commonly due to prostatic enlargement, in pregnant women due to obstruction by the uterus and the ureters, and in children due to congenital malformation in the urinary tract. Calculi, foreign bodies or tumours, may also be responsible. Pyelonephritis may occur in infancy and in adult women, however, without want or evidence of the obstruction. The infection ascends in most cases via the ureter and in some cases, it is blood-borne. About 70% of the infections are due to *Esch. Coli*, the remaining being due to streptococci, staphylococci or the proteus group of organisms. For the predominance of urinary infection in the females, the anatomical relation of the short urethra to the rectum is a predisposing cause. Besides, catheterization of the bladder is responsible for the introduction of organisms into the urinary tract.

Clinical features :

(1) In many cases there is a sudden onset of pain in one or both loins, radiating to the iliac fossa and supra-pubic area.

(2) There may be dysuria and strangury with the passage of small amount of scalding, usually cloudy urine, due to an associated cystitis.

(3) Temperature rises 100° to 102° . Besides, rigor may occur and there may be vomiting.

(4) Tenderness and muscular pain may be present in the lumbar region and hypochondrium.

(5) There is leucocytosis, the urine is acid in Esch. infections and in other it is alkaline.

(6) On microscopic examination, numerous pus cells are to be found, and some red cells and epithelial cells.

(7) When organisms are motile, infection is assumed to be due to Esch. Coli.

(8) In pyelitis in children, the disease presents only fever without any localised symptoms.

Complication :

Pyelonephrosis. This is the retention of pus in the pelvis on account of stone or renal tuberculosis and consequent formation of a cystic tumour in the kidney.

Diagnosis :

An acute case is diagnosed by the sudden rise of temperature with chill, pain in the loins, and sometimes by a tender swelling, dysuria, and examination of urine, showing many pus cells and causative bacteria.

Different Diagnosis :

(1) The diagnosis of pyelitis is established by the examination of urine, which will show many pus cells and bacteria.

(2) **Pyelonephrosis** is diagnosed by the presence of renal swelling.

(3) **Stone** is recognised by radiology.

(4) **Cystitis** is generally a febrile disease, and is usually accompanied by pain and discomfort at the end of micturition.

(5) **Urethritis** is recognised by local symptoms. (urethral discharge).

(6) **Prostatitis** is diagnosed by swelling and tenderness of the gland, felt on rectal examination.

Treatment :

Refer to pyuria and the following list of remedies :

- (1) Mercurius cor.
- (2) Hepar Sulph.
- (3) Terebinthina.
- (4) Cuprum Arsenicum.
- (5) Epigea.
- (6) Juniperus communis.
- (7) Uva ursi.
- (8) Arsenicum.

RENAL ABSCESS & PERINEPHRIC ABSCESS**Definition :**

An abscess on the kidney capsule following infection from elsewhere is called Renal abscess and that surrounding the kidney as a result of inflammation of the capsule is called *perinephric abscess*.

Etiology :

Renal abscess is usually due to staphylococci pyogenes, which reaches the kidney via the blood stream from a skin affection following trauma or boils or carbuncles. It is one of the metastatic infections resulting from a renal abscess from staphylococcal bacteraemia. Perinephric abscess may arise by direct extension or it may arise like a sub-phrenic abscess from neighbouring sepsis in the intestines, liver, or gall-bladder.

Symptoms :

The onset is generally gradual with fever and malaise. There may be no local symptoms for the 1st 7—14 days and during this period, there is increasing toxæmia, general abdominal discomfort or pain and slight fulness and resistance with deep tenderness in the loin. As abscess forms, pain and tenderness increase, there is induration, redness of the skin and oedema in the lumbar region.

The swelling that tends to spread backwards and then as pus collects it may spread forwards. A high swinging fever with rigor may then develop. The urine does not contain pus unless the abscess ruptures into renal pelvis.

Different Diagnosis :

Diagnosis is difficult in early stages, when pain alone is present, for it can readily be mistaken for *lumbago* or a *spinal disease*. The latter has no fever. It may also be mistaken for *renal tumour*, but in a simple tumour, there is no fever and the leg would not be held stretched constantly.

Remedies in general are :

- (1) Arnica.
- (2) Belladonna.
- (3) Hepar Sulph.
- (4) Mercurius sol.
- (5) Veratrum Viride.

RENAL CALCULI

(Nephrolithiasis)

Definition :

Renal calculi (stones) are commonly composed of calcium oxalate or phosphate or both. Phosphate stones tend to develop when infection is present. Uric or urates and cystic stones are less common.

Certain specific factors are known to play a role in particular varieties of stone formation, such as hyperthyroidism, congenital cystinuria, and oxaluria, gout and infection of the renal tract. The reason for the formation of the common oxalate or mixed oxalate and phosphate stones is however obscure. Concentration of the urine as in hot climate, reumbency and prolonged high calcium intake are predisposing factors, but do not explain the individual predisposition to stone formation.

Uric acid stones form when the urine is persistently acid. Many formers extricate an excessive amount of oxalate or have hypercalciuria with a normal serum calcium—factors which are likely to favour precipitation in the tubules or pevils.

The following conditions are usually associated with stone formation.

(a) Climate or occupation which necessitate living or working under conditions where excessive loss of water from sweating occurs, thus causing constituents to be precipitated because of their high concentration in the diminished volume of urine excreted.

(b) Urinary infection and stagnation.

(c) Conditions leading to hyper-calciuria (already mentioned above).

(d) Conditions causing increased secretion of uric acid *e.g.* gout and leukaemia.

(e) Dietary factors, such as excessive intake of milk or absorbable alkali.

Symptoms :

(1) Renal calculi may cause symptoms due to obstruction, ulceration and haemorrhage.

(2) Stones in kidney may cause pain in the loins specially on jolting.

(3) Stones in the ureter cause renal colic and if retained, produce hydronephrosis, infection and ureteric stricture. Ascending pyelonephritis and pyelonephrosis may occur.

Diagnosis :

The occurrence of renal colic and haematuria suggests stones, but these may be produced by the passage of blood clot from a renal cancer, or pyelitis. Hence X-Ray examination is of great value.

Prognosis :

The outlook to life is good, if the treatment is adequate.

Treatment :

For this, see Chapter IV under "Renal Colic".

HYDRONEPHROSIS**Definition :**

This is a condition in which the pelvis and the calyces of a kidney are distended or dilated by the accumulation of non-infected urine due to ureteral or urethral obstruction.

Etiology :

(1) The condition may be congenital due to an abnormality of the ureter or the urethra.

(2) The acquired condition is prevalent, more in females than in males, between 30 to 40 years of age.

(3) Bilateral hydronephrosis is due to urethral obstructions from a stricture of urethra, phimosis, enlarged prostate, or an obstruction from a tumour. The last is the most common cause.

(4) Unilateral hydronephrosis is due to urethral obstruction from stone, a growth, or a clot of blood.

Symptoms :

(1) Many cases give rise to no symptoms,

(2) the tumour may be discovered accidentally, or

(3) there may be pain in the flank or the back,

(4) sometimes, there is polyuria or haematuria due to nephritis or pyelitis.

(5) Pain may be accompanied by vomiting and collapse.

(6) In intermittent hydronephrosis the swelling may become evident and more painful after heavy drinking and may then subside with the passage of a large volume of urine.

Diagnosis :

This may be obvious clinically from the finding of a cystic renal swelling. Usually it is diagnosed by intravenous pyelo-graphy.

Treatment :

The following remedies are suggested :

- (1) Belladonna.
- (2) Ignatia.
- (3) Strychnin Ars.
- (4) Sulphur.
- (5) Clematis Erecta (stricture of urethra).
- (6) Anilinum (Tumours of urinary passages).

RENAL TUBERCULOSIS**Definition :**

Tuberculosis of kidneys is an infective disease from a pre-existing neighbouring focus. It is a blood-borne infection and may be an extension of miliary a pulmonary form of tuberculosis. In the miliary form, the nodules are widely disseminated throughout the tissues of the body, while the pulmonary form is confined to the lungs only.

Etiology :

The infection is carried on by the blood from an active focus from the lungs or the lymph nodes to the urinary passages and thence to the kidney. Both kidneys are affected. The adult women, who are usually affected, are between 30 to 40 years of age. The primary focus in the kidney is formed in the cortex related to glomeruli. Lesions may form single or multiple closed tubercular abscesses uni-lateral or bilateral, which later undergo calcification.

Symptoms :

(1) Frequency of micturition is often the early symptom. It is first noticed by day and later at night.

(2) Urgent and painful micturition develops next due to tuberculous cystitis.

(3) In urine there may be no other sign of abnormality than a trace of albumin in the early stage.

(4) Characteristically urine is pale and a little turbid from the presence of pus. It is acid in reaction, it may contain epithelial cells.

(5) By appropriate staining, tubercle bacilli may be demonstrated in the deposit.

(6) Haematuria may be the first symptom or the disease may develop insidiously with lumbar pain.

Diagnosis :

(1) The presence of tubercle bacilli is not a positive proof of renal tuberculosis, and so the diagnosis should be established by Cystoscopy. There is a possibility of renal tuberculosis in Hydro and Pyo-nephrosis.

(2) The differential diagnosis from *simple albuminuria* and several forms of *Bright's disease* is made by the presence of pyuria and the absence of signs and symptoms of chronic nephritis.

Prognosis :

This is uncertain. Some patients carry on with the disease for a long time, while others with complications like uraemia, succumb after a comparatively shorter period of illness.

Treatment :

See pulmonary tuberculosis, and compare the following :

(1) **Arsenic Iodide.** Useful in tuberculosis when there is fever, emaciation and tendency to diarrhoea.

(2) **Bacillinum,** is an intercurrent remedy to be employed in tuberculosis with caution. The general indication is 'better in open air'.

(3) **Calcarea Carb.** A constitutional remedy and can be used under the following indications :

- (i) sweat from least exertion.
- (ii) predisposition to taking cold.

- (iii) hopeful mind,
 (iv) eruptive skin conditions,
 (v) urine, dark-brown, sour, faetid, abundant with white bloody sediment.
 (vi) this remedy is to be used with *tuberculinum* (1M).

(4) **Calcarea Hypophosphate.** This is to be preferred to Calcarea Carb. in tuberculosis, if the vitality is low in consequence of continued fever and abscesses.

(5) **Calcarea Iodide.** It corresponds more exactly to the miliary form of tuberculosis. The kidney disease is an extension of the miliary form.

(6) Other remedies suggested are Chininum Arsenicosum; Chininum sulph.; Hekla; Kali Iodatum 1X and Cannabis Sativa 1X have been recommended in alternation; Kreosotum.

NEPHRITIS (BRIGHT'S DISEASE)

Definition :

Bright's disease is a syndrome, consisting of albuminuria, oedema, and usually high blood pressure. The majority of patients are suffering from glomerulo-nephritis, in the acute or chronic form. Nephritis embraces a group of conditions, in which there is either an inflammation or an inflammatory-like reaction in the kidneys. It is a non-suppurative and non-neoplastic kidney disease.

CLASSIFICATION CHART NEPHRITIS

<u>(A) ACUTE</u>		<u>(B) CHRONIC</u>		
(a)	(b)	(a)	(b)	(c)
Acute diffuse	Acute focal	Chronic	Chronic	Amyloid
Glomerulo	Glomerulo	Parenchymatous	Interstitial	Disease
Nephritis	Nephritis	Nephritis	Nephritis	(waxy kidney)

(A) ACUTE NEPHRITIS (BRIGHT'S DISEASE)

When illness comes on suddenly, characterised by a smoky urine (due to presence of blood), containing considerable quantity of albumen and tube casts, the disease is known as "*acute nephritis*" or acute haemorrhagic nephritis.

In this disease, inflammation begins and concentrates in the glomeruli, and to some extent in the tubules (the parenchyma) of the organ. This condition may pass off after 5 to 6 weeks, or become chronic. The acute form exists in two forms.

- (1) acute diffuse *glomerulo-tubular nephritis*, and
- (2) *acute focal glomerulo-tubular nephritis*.

(a) The Acute Diffuse Nephritis :

It is very rarely a primary disease. The infective organism is usually the *streptococci haemolyticus* from tonsils. Other acute infections may be associated with influenza, typhoid, malaria, cerebro-spinal fever and staphylococci infections. The predisposing factors are exposure to cold and the family tendency.

Symptoms and Signs :

(1) The generalised diffuse involvement of the kidney causes temporary renal failure (anuria, oliguria, etc).

(2) The albumen is considerable and urine may solidify on boiling.

(3) On account of the scanty urination, the specific gravity is high, though urea is diminished ; due to the presence of blood, the urine varies from a smoky to a dark-brown colour ; blood casts and free renal epithelium and red blood corpuscles are present.

(4) Dropsy begins from the face below the eyes, and then spreads to genitals, limbs and lumbar regions, and finally becomes generalised with retention of some fluid.

(5) The skin becomes pale and waxen.

(6) Pain in loins and slight fever may be present.

(7) Uraemic symptoms *e.g.* vomiting, headache, drowsiness may appear early.

(8) In the course of a few days blood pressure may become high, and the second aortic sound accentuated.

Prognosis :

With children, complete recovery in a few weeks is possible under good hygienic surroundings and treatment ; with adults, however, this is not usual, when the disease is associated with tonsillitis. If the disease lasts longer than 3 months, partial recovery is possible with the development of a large white kidney. If uraemia supervenes, death is almost certain.

(b) Acute Focal Nephritis :

This form usually arises during the acute stage of streptococcal infection and differs from the diffuse type in involving only a certain number of the glomeruli without producing any signs of renal failure.

Symptoms and Signs :

- (1) It is common to children.
- (2) Blood in urine may be profuse ; albumen is sufficient to be noticed with blood.
- (3) There is dull pain in the loins.
- (4) Renal failure is absent ; no uraemia, and no oedema, and no rise in blood urea, or blood pressure.

Prognosis :

This is excellent in general, if chronic nephritis does not occur.

(B) CHRONIC NEPHRITIS

This is a condition in which albumen is associated with casts, but blood is usually absent. There are three varieties of this renal disease :

- (a) **Chronic Parenchymatous Nephritis ;**
- (b) **Chronic Interstitial Nephritis ;**
- (c) **Amyloid disease of the kidney** (waxy or lardaceous kidney).

(a) Chronic Parenchymatous Nephritis :

This disease is also called Chronic Tubular Nephritis. A large white or pale kidney usually follows acute nephritis, or develops

insidiously without notice. The renal epithelium is chiefly involved. At a later stage, when the connective tissue is increased and the patient lives long enough, the kidney becomes a contracted small kidney, or a small white kidney.

Etiology :

(1) Usually this follows acute nephritis, or prolonged mechanical congestion of the kidney.

(2) Occasionally, it may come without any apparent cause by some source of infection in blood, such as, pyorrhoea, septic tonsils, earache, naso-pharynx, diseased colon and sometimes syphilis.

(3) The predisposing cause may be excessive use of alcohol.

(4) The disease is mostly noticed in adult males.

Note :

"*Nephrosis*" is used for a special type of parenchymatous nephritis in which there is degeneration of the kidney substance without any signs of inflammation and cardio-vascular changes, but there is marked oedema and albuminuria.

Symptoms and Signs :

(1) Scanty urine, considerable albuminuria, often turbid with urates and all forms of casts ; blood is usually absent.

(2) Generalised oedema, most marked in the face.

(3) Pallor and emaciation ; weakness and digestive disorders.

(4) Blood pressure and blood urea are very little raised. Later, when the stage of contraction starts, the symptoms are :

(i) diminution of albumen ; volume of urine increases and specific gravity falls ; urates are considerably reduced,

(ii) oedema and dropsy disappear,

(iii) blood urea and blood pressure rise gradually,

(iv) uraemia symptoms appear.

Differential Diagnosis :

In primary cases, this disease is often mistaken for simple anaemia. In such cases, examination of urine for albumen and

urates will clarify the disease. In later stages, the patient is usually older; the quantity of urine is greatly increased, and there is a tendency to oedema, and quantity of albumen is very slight.

Prognosis :

The prognosis is grave in proportion to the amount of dropsy and albuminuria and uraemic symptoms and suppressed urine.

(b) Chronic Interstitial Nephritis :

In ordinary terms, it may be called

(i) contracted or granular kidney,

(ii) cirrhotic kidney, or

(iii) a small red kidney. In this disease, the kidney is associated with widespread cardio-vascular changes, in which high blood pressure and its general symptoms are more pronounced than the urinary ones, and the interstitial tissue (not the tubules) is involved.

Etiology :

(1) Generally an indolent life and chronic lead and alcohol poisoning are causes of a granular kidney.

(2) Various forms of toxæmia which produce constant high blood pressure often lead to chronic interstitial nephritis.

Note .

A rare form of chronic interstitial nephritis is represented by the small white kidney.

(c) Amyloid Disease or Waxy Kidney :

It is generally a widespread formation and deposit of amyloid in an organ, notably the liver and kidney, but the spleen and intestine may also be involved and cause enlargement and diarrhoea.

Signs :

(1) The albumen, at first very small, is abundant when the disease is fully established.

(2) Urine at first unaltered, soon becomes copious with a low specific gravity without reducing the urea content ; the colour is pale and clear ; all varieties of casts may be present.

(3) The skin is pale and anaemic, but no oedema till the end of the disease.

(4) Enlargement of liver and spleen, and consequent haemorrhages may be present.

(5) Amyloid of the intestine may produce a very severe diarrhoea.

Prognosis :

The disease lasts for a long time, and the patient lives for a long time unless there are complications, and diarrhoea sets in.

Treatment :

General : The patient must be kept mostly on milk diet. For the first three or four days, it should be restricted to glucosé, whey, orange juice and restricted sugar. During convalescence, bread and butter, soft rice, vegetables and boiled fish should be added to it.

Curative :

(1) Apis :

- (i) Constant, dull, stinging pains in kidney.
- (ii) thirstless,
- (iii) scanty, painful and bloody urine,
- (iv) oedema of the face and limbs,
- (v) suffocation on lying down,
- (vi) the abdominal walls are sore and tender.

(2) **Arsenicum.** Acute nephritis, especially after scarlet fever, albuminuria, cylindrical casts, dropsy, thirst for cold water, anxiety, desire for warmth. The skin is very dry and emaciation is marked. The face, which is pale and waxy, is oedematous. There is frequent desire to urinate.

(3) **Cantharis.** Inflammation of the kidney with suppression of urine, burning in urethra and aching in back, and sometimes haematuria.

(4) **Ferrum Met.** Pale bloated appearance ; chilly ; vomiting of food, or passing it undigested, fulness of head ; nose-bleeding, irritable patients.

(5) **Merc Cor.** Albuminous nephritis of pregnancy ; suppurative nephritis.

(6) **Plumbum.** Interstitial nephritis ; granular degeneration ; gouty kidneys, pale, bloated, heavy expression, melancholy disposition, constipation.

(7) **Kali Carb.** Tensive pain in the left side ; swelling of inguinal gland ; oedema of left foot, extending gradually to the right foot and upwards to the whole body ; blackish urine which, on shaking, foams and, on standing, leaves a thick reddish slimy sediment ; frequent soft, palish evacuations from the bowels ; the cause may be a blow upon the left side, or staying out for hours in wet clothes.

(8) **Kali Iodatum.** Scanty, dark urine ; painful urination ; sediment, dirty yellowish ; great thirst and heat in the head.

(9) **Terebinthina.** Scanty secretion of dark bloody urine which coagulates under heat ; oedema all over, intestinal catarrh and diarrhoea ; bronchial catarrh with expectoration of much mucous ; characteristic urinous odour of violets.

(10) The other useful remedies are :

(i) **Methylene Blue** (acute)

(ii) **Koch's Lymph** (acute and chronic)

(iii) **Kali chloride** (Nephritis with stomatitis)

(iv) **Berberis vul.**

(v) **Eucalyptus** (suppurative Nephritis)

(vi) **Belladonna** (Great arterial excitement, headache and vomiting).

HYPERTENSIVE NEPHROSCLEROSIS

Definition :

Hypertensive Nephrosclerosis is a term applied to the involvement of the renal area by hypertensive vascular disease, giving

rise to disturbances in the renal function, associated with the development of a clinical picture, identical with that of chronic nephritis. A hypertensive vascular disease terminates in cerebral haemorrhage, cardiac insufficiency, or uraemia.

Varieties :

Nephrosclerosis is divided into three groups :

- (i) Benign,
- (ii) Malignant, and
- (iii) Senile Nephrosclerosis.

Etiology :

The predisposing factors are similar to "Hypertension" described in Chapter II (Circulatory system). They are briefly repeated here.

- (i) Heredity.
- (ii) People, particularly women, between 40 and 50 years of age, are liable to a hypertensive disease.
- (iii) Diabetes mellitus.
- (iv) Obesity.
- (v) Suppressed hostility, suppressed aggression, and emotional instability have etiological significance.
- (vi) Glomerulo-nephritis and toxæmia of pregnancy give rise to high blood pressure.

Symptoms and Signs :

(a) Benign Variety :

When hypertension is of a long standing duration, it must always lead to definite renal changes which are :

- (1) Progressive atrophy of the glomeruli and the tubules, due to deficient blood supply.
- (2) The kidneys are contracted ; granular and brownish-red in colour with arterial openings. The surface is granular and tough.
- (3) Degeneration of the organ gradually leads to cardiac [hypertrophy and renal failure and finally death.

(b) **Malignant Variety.** Severe renal arteriolar degeneration takes place and this causes rapid renal insufficiency, uraemia, and cardiac hypertrophy. This is a grave state of affairs, and so prognosis is unfavourable. Hypertension is severer, with systolic pressure over 220 and diastolic over 120 in majority of cases.

(c) **Senile Variety.** (Without hypertension).

(1) Owing to senility, there are inevitable degenerative changes in the renal arteries and its branches, leading to the destruction of the glomeruli and the tubules of certain areas.

(2) Kidneys get depressed and contracted, but there is no rise of blood pressure and no cardiac hypertrophy.

(3) The mental and physical power gradually declines, but the renal insufficiency is not great, and so prognosis is not so unfavourable. If death at all prevails, it is due to complications of other diseases. The obvious symptoms that lead to the diagnosis of this disease are :

- (i) high blood pressure and chronic nephritis,
- (ii) the presence of proteins, albumen and blood in urine,
- (iii) cardiac hypertrophy,
- (iv) dyspnoea and congestive heart failure with or without pulmonary oedema,
- (v) headache,
- (vi) anaemia, and
- (vii) uraemia.

Prognosis :

Patients, suffering from arteriolar nephrosclerosis die eventually of uraemia, unless cardiac insufficiency, or cerebral haemorrhage terminates the disease which may be rapidly progressive in its course in a few months, or it may progress gradually over a period of many years. Prognosis, therefore, though unfavourable, is uncertain, and depends entirely upon the presence of new diseases and complications.

Treatment :

As per chapter II, under "Hypertensive Heart". See also "Nephritis" and "Uraemia". The following remedies are suggested :

(1) *Spartium scoparium* 3X will increase the strength of the heart and reduce blood pressure.

(2) *Digitalis*.

(3) *Veratum Album*.

(4) *Cuprum Ars*.

(5) *Urea*.

(6) *Opium*.

(7) *Caffein* (heart failure).

URAEMIA**Definition :**

Uraemia may be defined as a clinical picture or pattern due to renal failure, resulting from either the disease of the kidneys themselves, or from a disorder or disease elsewhere in the body, which induces abnormal function of the kidney, and results in gross chemical disturbances in the body including retention of urea and other nitrogenous substances in blood. This disorder is characterised by nausea, vomiting, headache, hiccough, weakness, dimness of vision, convulsions and coma.

Etiology :

Uraemia is the ultimate effect of the renal failure and the retention of nitrogen in blood. The renal insufficiency may originate from any of the various sources of the kidney damage, such as, nephritis, renal infection of both kidneys, mechanical obstruction of the ureters, kidney cysts, and growths and poisons. In addition, there may be a situation, in which renal function fails by physiological disturbances outside the urinary tract, such as, dehydration, sodium loss, haemorrhage or shock.

Symptoms and Signs :

The symptoms may be described under three headings.

(a) Incipient uraemia ;

(b) Advanced uraemia ;

(c) Fulminating uraemia.

(a) **Incipient Uraemia.** In the incipient form, the symptoms are vague and start imperceptibly. The patient goes about his work, but complains that he is unwell. He feels headache, loss of mental and bodily vigour, appetite, and memory with general emaciation and sometimes sleeplessness. There may be some urinary changes also.

(b) **In Advanced Cases.** The patient suddenly suffers from :

(1) restlessness, twitching, and muscular tremors (a constant symptom).

(2) Gastro-intestinal disturbances, such as, thirst, anorexia, nausea, vomiting and often epigastric pain, diarrhoea and sometimes ulcerative colitis.

(3) Dyspnoea on the slightest effort of a paroxysmal type, at night, resembling asthma.

(4) Pulse is slow ; pupils are dilated.

(c) **The Fulminating Type of Uraemia.** It may come dangerously at any stage with symptoms of intense headache, vomiting, or restlessness, coupled with three prominent and leading symptoms :

(i) low muttering delirium,

(ii) stupor, passing into coma with or without,

(iii) convulsions, which may be of an epileptic type ; sometimes these convulsions are followed by uraemic blindness which may last for several days. Deafness and paralysis may also occur. The breath may have urinary odour frequently.

Diagnosis :

In case of doubt between *Uraemia* and a *Cardiac Vascular disease*, the estimate of blood urea will decide the issue. Retention of urea in blood in excessive quantity is indicative of uraemia which may lead to a cardio-vascular disease.

Prognosis :

The prognosis of true uraemia depends upon the underlying cause of renal insufficiency. When this cause is amenable to treatment, as in prostatic obstruction, the outcome is favourable. Unfavourable signs are retention of creatinine (Protein in products) and severe anaemia and convulsions.

Differential Diagnosis :

It is not easy to distinguish "**Uraemia**" from *hypertension*, *apoplexy* and *coma from other causes*. Retention of nitrogenous products in blood with lowered absorption of CO_2 is very suggestive. Previous history and signs of a kidney disease greatly help the diagnosis in advanced cases.

Treatment Dietary :

Protein diet should be restricted.

Curative :

See 'Nephritis' of which this is usually a symptom. The following remedies are also suggested :

(1) **Ammonium Carb.** Uraemia ; heaviness in all organs, swelling of glands, acid reactions ; prostration ; frequent desire to urinate with tenesmus ; urine white, scanty, bloody copious turbid and foetid.

(2) **Curum Ars.** For uraemic convulsions, nephritis of pregnancy, convulsions, preceded by gastro-intestinal symptoms ; renal failure and uraemia. Urine of high specific gravity, increased acetone and chronic prostatitis, slow and difficult urination, strangury paralysis of the bladder.

(4) **Picric Acid.** Complete anuria, nephritis with profound weakness.

(5) **Carbolic acid and opium** for *coma* in uraemia.

CYSTITIS**Definition :**

Cystitis is the inflammation of the mucous lining of the bladder, characterised by redness, swelling and mucous secretion, and when becoming chronic, by a livid appearance of the membrane with slate-coloured spots. The mucous membrane is either softened, or thickened, or infiltrated and covered with a thick greyish, purulent secretion. It occurs in two recognised forms, acute and chronic.

Etiology :

The mucous membrane being unsusceptible to direct infection, cystitis is secondary to :

- (1) infection, often gonorrhoeal, higher up in the urinary tract,
- (2) obstruction to the flow of urine by a stricture, a stone, or enlarged prostate,
- (3) general infection, or
- (4) trauma from stone, or contaminated instruments.

The bacteria are usually *Esch Coli* ; *Salm. Typhi* ; *B. Tuberculosis* ; *Gonococci* ; or *Streptococci*, introduced by extension from neighbouring organs.

Symptoms :

Pain in the region of bladder, worse from external pressure and motion, often extending along ureters into kidney and downwards through the urethra.

(2) Frequent, painful micturition in drops under great straining.

(3) At its height, it causes fever, vomiting, prostration, cold perspiration, and hiccough.

(4) In a chronic form, it is not so painful, but always attended with a frequent desire to urinate.

(5) In some cases, urine flows involuntarily, due to paralysis of the sphincter.

(6) Urine is highly coloured and hot.

Signs :

(1) Examination of urine shows that it is loaded with pus and sometimes blood (acid urine with pus indicates the presence of *Esch. coli*, gonococci, or tuberculosis germs). In other infections, it is alkaline.

(2) Turbid urine leaves a deposit of heavy and glairy mucous, on standing.

(3) The smell of urine is, more or less, ammoniacal.

(4) The chronic form causes hypertrophy or dilatation of the bladder, which incapacitates the patient to void the bladder entirely.

(i) In acute cystitis :

(1) Pus exists in small amounts.

(2) Considerable blood in severe cases.

(3) Urine, at first acid, soon becomes alkaline and ropy, with pus and mucous.

(4) Pain and tenderness in hypo-gastrium.

(5) Voidance of urine painful and frequent, with a constant desire.

(6) Pain subsides after micturition, unless cystitis is due to stones.

(7) There are generally marked constitutional disturbances.

ii) In chronic cystitis :

(1) A large amount of pus is present.

(2) Urine is alkaline throughout and contains a large amount of ropy mucous.

(3) The pain and other symptoms are less severe than in acute cystitis.

Differential Diagnosis :

Cystitis *due to calculus* should be distinguished from cystitis *due to new growths*, or *ulceration*, by paroxysms of lancinating pains with blood at intervals without cause.

Treatment :

General : (1) The patient should be put to bed on milk diet.

(2) The hypogastrium should be fomented.

Curative :

(1) **Apis**. This can be used in cystitis after the abuse of *Cantharis*. The chief indications are : scanty urine, drowsiness, oedema in various parts, thirstlessness, suffocation on lying down.

(2) **Belladonna**. Nervous dysuria ; painful micturition in cystitis and fever with frequent desire to urinate ; constant dribbling of hot and red urine and sensation of a worm in the bladder

(3) **Benzoic acid**. To be used in cystitis, when urine smells like horse urine (ammoniacal) and has the colour of beer.

(4) **Berberis Vul.** If the cause is renal calculi, this medicine will prove very suitable on the following indications ; severe teasing pains in the kidney region, including backache, but deep in the kidneys, particularly the left one ; pains extend to back and then to the ureters into the bladder, where cutting pains are felt, which are relieved by standing, but are worse by stooping, lying or sitting ; desire to urinate frequently (retention of urine in the bladder). The bladder aches ; urine is reddish, with a deposit consisting of mucous, urates, and epithelium ; pain in the hips, while urinating ; the special thing to be remembered about Berberis is that it has more pains in the back than in other places and their seat is deeper.

(5) **Camphora** will give spontaneous relief in the retention of urine in cystitis.

(6) **Cantharis**. Suitable for acute, more than the chronic form of cystitis ; persistent and violent urging to urinate with great straining ; urine passes in drops and seems like molten-lead, passing through urethra ; this indicates the intensity of burning and aching in small of back ; there might be haematuria sometimes.

(7) **Chimaphila**. Cystitis due to prostatitis with constant desire to urinate with almost no relief from micturition. Is more suitable in chronic cystitis, as the condition of urination is more due to irritation than to inflammation.

(8) **Equisetum**. Pains, enuresis with marked vesical irritation.

(9) **Epigea**. Chronic cystitis with urine of brown colour ; burning while urinating, but tenesmus afterwards.

(10) **Mercurius Cor.** Comparatively less burning but greater straining during and after urination, drop by drop ; constant urging with terrible distress at the neck of the bladder, as the trouble is more urethral than vesical ; bladder sore to touch ; urine has pus and blood.

(11) **Nux Vomica**. Indicated in vesical torpor or paralysis with dribbling of urine or retention ; cystitis with painful urging and scanty urine ; at times straining ; colour of urine is dark with a red brick dust sediment ; bloody or mixed with a tenacious mucous ; pains are burning and tearing ; useful after inflammation subsides.

(12) **Pareira Brava**. The pains under this remedy extend not only up to hips as in *Berberis*, but extend further down the thighs ; violent straining with strangury ; irritation of kidneys, bladder, prostate, and urinary passage ; can only urinate by getting upon knees.

(13) **Populus Tremuloides**. Cystitis ; catarrh of bladder, especially in old people ; a good remedy in vesical troubles after operations and in pregnancy ; tenesmus ; urine contains pus and mucous, prostate enlarged.

(14) **Terebinthina**. Urine is smoky, turbid and deposits a sediment like coffee-grounds, which indicates disintegration of blood vessels ; burning during voidance of urine ; most painful strangury ; scanty urine has the odour of violets ; urine, oedema and bronchial catarrh are the main symptoms.

(15) **Arsenicum**. When the disease runs a rapid course and becomes threatening and when the retention of urine gives rise to violent distention of the bladder and threatens paralysis.

(16) **Cannabis Sativa**. To be given, if cantharis does not give relief within 24 hours.

(17) **Conium**. Intermittent urination or in other words the urine flows and stops.

(18) **Hyoscyamus** has no will to urinate ; involuntary urination as the bladder is paralysed.

(19) **Pulsatilla**. Continued desire to urinate, as there is pressure on the bladder, which is hot and red externally. The urine has a reddish, bloody or mucous deposit which sticks to the vessel.

(20) **Uva Ursi** is useful when the bladder fails to expel all the mucous.

(21) **Sulphur**. When there is a tendency to relapse and the urine has a thick tough mucous which sticks to the bottom of the vessel.

(B) THE REPRODUCTIVE SYSTEM
VENEREAL DISEASES
GONORRHOEA : (SPECIFIC URETHRITIS)

Definition :

Gonorrhoea is an infective condition, caused by the infection of mucous membrane, usually that of *urethra* in the male, or *cervix uteri*, the neck of uterus, in the female, with the organism *gonococcus* or *Neisseria Gonorrhoeae* which is able to penetrate into the cells in the undamaged mucous membranes.

Etiology :

The gonococcus is a gram positive diplococcus. It is a strict parasite and depends for spread upon direct transference from host to host. It spreads along mucosal surfaces and is also able to penetrate columnar epithelium producing an inflammatory response in the sub-mucosa. It is susceptible to environment and is rapidly killed by drying or by weak antiseptics. It seldom survives for more than a few hours outside the body except under conditions of artificial cultivation.

Modes of infection :

Sexual intercourse is by far the most common and important mode of infection causing involvement of the lower genito-urinary tracts in both sexes. Infection may also be transmitted to the rectum in the passive homo-sexual and to the conjunctival sacs of adolescents or adults, also to those of newly-born infants by contamination with the infected genital secretions of the mother. Occasionally, accidental infection occurs in children due to poor standards of hygiene or close contact in bed. Little girls are particularly susceptible to infection, transmitted from their parents in this way. Spread of infection in schools and hospitals has been reported in the past.

Diagnosis :

The organism is identified by the examination of the infected material by smear and culture and if necessary by sugar fermentation tests. Staining shows organisms which appear within the cytoplasm of leucocytes. Fermentation reactions differentiate the organisms from the other *Neisseria*.

Clinical Features :

The constitutional symptoms are not usually severe. The patient feels "off colour", and there may be a dragging pain in the loins and the perineum, associated with constipation, with a dirty tongue and slight fever. These symptoms usually subside within a week or so. The local symptoms vary in the male and female patients, and so it is necessary to describe them separately as follows.

(a) **In the Male**, the early symptoms are :

(1) Smarting in urethra, while urinating.

(2) Meatus is red and swollen, and urethra is usually tender on pressure, and a small amount of pus can be squeezed out from the meatus.

(3) The purulent discharge becomes free, yellow, and thick in a day or two.

(4) Desire for urination is frequent, but the act causes irritation.

(5) There may be haemorrhage also due to congestion.

(6) Urinary retention, due to congestion and spasm, is present.

This stage lasts for about a week and then

(7) The discharge becomes mucoid and glairy and, in an uncomplicated case, ceases in about six weeks to two months. This, however, does not mean that the patient is cured, as the gonococci are still present in urethra and complications follow a *Chronic Gleet*.

(b) **In Women** the acute stage often escapes unnoticed, as the disease often passes to the adjacent organs and causes widespread damage, before one is able to detect it. The primary infection is commonly from an uncured gleet in the husband, though occasionally, it may be acquired from the infected closet seat, or fouled garments. It is a universal disease among prostitutes of all classes. *Early symptoms are :*

(1) Slight smarting and itching of external genitals which are red and oedematous and secrete a thick yellow pus with a peculiar foetid odour ; this may also be squeezed from the urethra.

(2) In adults, the vaginal mucosa escapes infection, and its normal pink walls are in marked contrast to the reddened vulva

(cervicitis) and the neck of the uterus (metritis). The disease, if untreated, becomes chronic and complications set in.

Complications :

(a) In Males :

(1) Chronic urethritis, due to the gonococci being harboured in the inflamed urethral glands, is manifested by a slight glairy urethral discharge or *gleet*, most noticeable on rising in the morning, and some redness at the meatus with a certain amount of local irritation.

(2) **Posterior Urethritis** leads to frequent urination and a heavy sensation in the deep perineum.

(3) **Prostatitis** occurs as a result of direct infection of the prostate duct from the posterior urethra.

(4) **Vesiculitis**. The seminal vesicles get inflamed and hot, and become enlarged and tender giving rise to symptoms akin to prostatitis.

(5) **Epididymitis and Orchitis**. These are characterised by sudden pains and swelling of the epididymitis in the back part of the scrotum, and later, the testes become somewhat swollen and tender. Slight hydrocele may also be present.

(6) Pus may be formed in the spermatic cord by extension of gonococcus infection.

(7) Rare complications may be *cystitis* and *pyelitis*.

(8) Besides, pus may be conveyed to the eye, the nose, and the rectum by contact, causing conjunctivitis, rhinitis and proctitis respectively.

(b) **In Women**. The complications in females may be widespread and serious owing to direct communication between the uterine cavity and the peritoneum. These are :—

(1) **Endo-Metritis** (an infection of the lining membrane of the uterus.)

(2) **Salpingitis** (inflammation of the fallopian tubes.)

(3) **Peritonitis** which is frequently confined to the pelvis, but may become generalised and fatal.

(4) **Bartholinitis** (inflammation of Bartholin's glands) which is common to prostitutes,

(5) **Urethritis**, Cystitis and pyelitis, to which every woman infected with gonorrhoea, is exposed.

Diagnosis :

This is made by :

- (i) history of the exposure,
- (ii) local signs including urethral pus,
- (iii) microscopic examination of pus, and
- (iv) *Compliment Fixation Test* of the blood.

PROSTATITIS

Local Complications. In males prostate gland is frequently affected, when the infection has reached the posterior urethra. Acute prostatitis causes fever, malaise, pain, and dysuria. A hot tender swelling can be felt via the rectum. Retention of urine may occur. Chronic prostatitis may persist for many years and become a hidden focus of infection. There is an intermittent slight urethral discharge, or dysuria with long periods of remission. Nodules are palpable in the prostate via the rectum. The presence of prostatitis may be suspected by urinary symptoms, discomfort or pain in the back, pelvis or loins ; chronic types may cause arthritis.

Treatment :

(a) Prostatitis :

(1) **Aconite and Belladonna.** These are two common remedies for all inflammations in the initial stage.

(2) **Chimaphila** is a good remedy for hypertrophy of prostate gland ; when there is frequent urination and discomfort. *Spongia* is another remedy for this condition, particularly when spermatic cord and testicles are swollen and red.

(3) **Ferrum Picricatum.** It is the best remedy for prostatic enlargement or hypertrophy and inflammation in the aged. 3X potency is recommended.

(4) **Cimicifuga.** One doctor speaks very highly of this remedy in prostatic hypertrophy.

(5) **Conium** is also considered suitable for all kinds of enlarged glands.

(6) **Lycopodium**. For enlarged prostate and its inflammation, when there is pressure in the perineum near the anus while urinating.

(7) **Sabal Serrulata**. For prostatic troubles, both of inflammation and enlargement when the gland is hot, swollen and painful. It also works well in senile cases, and prevents operation.

(8) **Thuja**. For both hypertrophy and inflammation, when there is frequent pressing to urinate with a small discharge and in so doing the patient strains much and there is discharge of prostatic fluid in the morning on waking.

(b) **Orchitis :**

(1) **Aconite**. When there is fever and restlessness etc.

(2) **Aurum**. Chronic cases with pain in spermatic cord and testes.

(3) **Belladonna**. When with fever, there is great intolerance of pain, with sensitiveness of nervous system.

(4) **Clematis** (orch, scrotum) as a result of suppression of gonorrhoea.

(5) **Hamamelis** to be applied locally and even given internally when there is excessive local sensitiveness.

(6) **Mercurius Biniodide**. When it is due to syphilis.

(7) **Spongia**. Chronic inflammation with aching and swelling of testes and cord.

(8) **Pulsatilla**. Acute orchitis, when the discharge becomes suppressed.

(9) **Thuja**. Recurrent attacks of gonorrhoea with complication of orchitis ; possibly with figwarts or condylomata.

(c) **Gonorrhoea :**

(1) **Aconite**. (i) During acute stage when the urine is hot, burning, scanty and is passed with difficulty.

(ii) At this initial stage, urethra is dry, and has a crawling sensation ; orifice is red and there is mental anxiety often.

(iii) The discharge has no colour.

(2) **Atropine 6X** has been recommended as the best remedy for acute gonorrhoeal urethritis (1st stage).

(3) **Cannabis Sativa** :

(i) This should be used after Aconite, when the disease has localised itself and has a purulent discharge, great burning and pain on urinating.

(ii) The penis is red and swollen.

(iii) Erection of penis is painful.

(iv) Urine is also tense and painful.

(v) Potency selected should not be lower than 3X or 6X. Cannabis is most useful when there is marked painful erection.

(4) **Gelsemium**. Good for inflammatory stage with great urethral soreness, burning and slight discharge.

(5) **Cantharis**. This is the best remedy, when the disease shifts from urethra to the bladder by suppression, and there is violent persistent tenesmus during urination. Intense sexual excitement is another major symptom. There ought to be intense irritation with persistent erections which prevent urination. Burning in the neck of the bladder and urethra, great dysuria, and constant desire exist. Urine which smells of violets. *Cubeba* also has this smell but with ropy discharge.

(6) **Mercurius Sol**. This remedy is the best one for gonorrhoea in the first stage, when there are inflammatory symptoms, such as, painful erections, phimosis, and inflamed prepuce. The discharge is greenish. (In *Mercurius Cor*, the discharge is green and purulent, worse at night). The opening is red, and there is violent tenesmus of the bladder.

(7) **Pulsatilla**. This is a remedy for ripe gonorrhoea without much pain. Thick muco-purulent discharge, yellow or yellowish-green in colour, some pain in loins also, shifting from side to side, valuable when gonorrhoea is suppressed and *orchitis* results.

(8) **Sepia**. Gonorrhoea in women, after acute symptoms have subsided.

(9) **Agnus Castus** is also good when acute symptoms have subsided. In this remedy there is no sexual desire.

(10) **Sulphur**. It is useful in cases of scrofulous or psoric taint; this will reduce the intensity of the disease if given early, even without indications.

(11) **Thuja**. Most valuable in lingering cases with prostate complications and in cases of suppression, complicated with orchitis, figwarts or condylomata showing sycotic tendency, constant desire to urinate, and urine scalds ; thin green discharge.

(12) **Tussilago**. This medicine has a brilliant record in gonorrhoea without characteristic indications.

(13) **Petroselinum** has intense itching in urethra, as if, it should be scratched or rubbed ; pain felt at the root of the penis ; sudden desire to urinate with pains is the characteristic symptom.

Vaccine Gonococcus and the Nosode Medorrhinum are useful remedies.

NON-SPECIFIC URETHRITIS

Definition :

This term is used for cases of non-bacterial urethritis in the male, following sexual course. This type of urethritis is a frequent occurrence in the male. In the female it may be associated with the inflammation of vulva, vagina and cervix and with infections due to *Trigomonos*.

Signs :

It appears as a purulent urethral discharge 4 to 10 days after exposure. There is thick fresh pus devoid of bacteria. The pus cells do not stain well. If this urethritis does not resolve quickly, it spreads to other parts of the genitic tract and may cause *cystitis* and *cervicitis* and *salpingitis* in females. By some it is considered to be a cause of spondylitis.

Treatment :

(a) *Argentum Nitricum*,

(b) *Cannabis Sativa*,

- (c) *Hydrastis*,
- (d) Kali Sulph.
- (e) *Mercurius Cor.*
- (f) Hepar Sulph,
- (g) *Pulsatilla*.

SYPHILIS (ACQUIRED)

Definition :

Syphilis is a specific and most severe venereal disease, due to the entry of *spirochaete pallida* (*Treponema pallidum*) into the tissues either by inoculation into the skin or the membrane (acquired syphilis), or by transmission to the ovum (*Congenital Syphilis*).

Etiology :

The *spirochaetes pallida* (*Treponema pallidum*) have been recognised to be the causative agent since 1906, discovered by Schaudin and Hoffman. It is a delicate thread-like cork-screw-shaped organism, tapering at each end and displaying its activity in a wet environment. The organism is to be found in large numbers in the primary and secondary lesions in acquired syphilis, and in the lesions of congenital syphilis, but sparsely in the tertiary lesions of the acquired disease in para-syphilitic affections. The acquired syphilis is communicated from one individual to another by direct and intimate contact, usually during coitus. The mode of transmission is the result of infection taking place through abrasions on the delicate mucous membrane of the genitals. The disease can also be acquired occasionally otherwise, when the seat of infection is in other part of the body, (except the genitals), such as, fingers, lips, tonsil, nipples, etc. This infection occurs by inoculation through an abrasion during examination of an infected patient, or while using infected crockery, or smoking pipes, or suckling an infected child, etc. It must be remembered that *Treponema pallidum* cannot penetrate the mucous membrane, except when an abrasion is present. The infection thus acquired, being very difficult to eradicate, is often transmitted to descendents, when we call the disease "*Congenital Syphilis*."

The organism has a life of only a few hours under natural conditions outside the body, but in blood obtained for purposes of transfusion it can remain alive for 72 hours. It is killed at once by drying and by much weaker antiseptic organisms.

Clinical Features :

About three to six weeks after exposure to infection, a primary sore, with painless enlargement of nearest group of lymphatic glands, manifests itself as the first sign of infection. This stage called the *Primary Stage*, lasts from six to eight weeks from the date of infection. Next comes the *Secondary Stage* which lasts from one to two years. During this stage, the skin, the mucous membranes and lymphatic glands are susceptible to the attack of the causative organism. *The third or tertiary stage*, which follows gradually the secondary stage, may last for the rest of the patient's life with the appearance of localised granulomatous masses, known as *Gummata*, or with fibrosis, etc. in the spinal cord, in the bone, and elsewhere. A detailed picture of each stage is given below :

(a) **Primary Syphilis (1st Stage).** After about three to six weeks of infection, the primary stage starts with the development of a single PRIMARY SORE (HARD CHANCER) and the enlargement of the adjoining lymphatic gland. *In the male* the sore is usually situated around the corona, or the fraenum, or around the meatal orifice, but it may occur anywhere on the genital, or on the abdominal wall and occasionally in urethra. *In the female*, the chancre is situated about the vaginal orifice or along the *labia minora*. This primary sore sometimes (particularly in women) escapes the notice of the patient and even the physician. There are three varieties of this chancre .

(i) **The Hunterian Chancre :** an indurated, painless mass of lymphocytes, is situated usually on the glans penis and has a thin serous discharge after ulceration.

(ii) **The Papular Chancre.** Usually occurring in the skin, is at first a hard, raised papule, like the split pea, much indurated and painless, and then becomes concave, following necrosis in the centre, from which a clear serous discharge ensues.

(iii) **The Parchment Induration of Record** appears on the glans penis and mucous surface of the foreskin and vulva. This has a painless *superficial* induration and is easily overlooked.

(iv) Another type of genital sore, called *Extra-genital chancre*, appears on other parts of the body, such as, cheeks, breast, fingers etc. These are minute and closely-set vesicles which ulcerate, but cause no induration.

Whatever type of a chancre exists, the lymphatic glands are painless and enlarged. They move freely in the tissues, and do not usually suppurate. The presence of these swollen glands helps in the diagnosis of the primary chancre, whether it is on the genitals or elsewhere.

(a) **Secondary Syphilis (stage II).** This stage begins about the sixth week after infection with the disappearance of the hard chancre, though the enlargement of the lymphatics persists for some-time. The infection, which remained localised during the primary stage, disseminates to all the tissues of the body through blood, giving rise to a condition resembling septicaemia, resulting in constitutional disturbances, such as :

- (i) Intermittent temperature,
- (ii) the patient feels off colour,
- (iii) loss of appetite,
- (iv) headache,

(v) generalised slight enlargement of lymph nodes throughout the body, especially in the arm. Besides these, there are *rashes of the skin*, of a coppery, or raw ham colour, frequently of different types that do not itch. The rashes are more on the trunk than on the limbs and the flexor surfaces are more affected than the extensor ones. The rash is usually symmetrical in its distribution, and frequently arranges itself along the folds or creases of the skin.

The mucous membranes may also be affected, forming :

(i) *A Mucous patch*, tracking over the mouth and the fauces, and later separating into ulcers called *Snail track ulcers* ;

(ii) in situations, where the skin and the membrane meet, these form opaque masses or warty excrescences and are called *Mucous Tubercles* and *Condylomata* respectively. These occur around anus, vulva and lips usually in persons of unclean habits.

In the long bones, inflammation may occur and cause attacks of pain. Headache and neuralgia, together with the thickening of the synovial membrane at the joints, may also appear. In the eye *Iritis* and *Cyclitis* may be other complications. In the later secondary stage, sometimes called *The Intermediate Stage*, manifestations of gummatous growths which really belong to the third stage are observed. These lesions are commonly of three types :

(1) **Syphilitic Psoriasis.** This is seen usually in the palms of the hands and the soles of the feet, but may occur elsewhere also. This is distinguished from *true psoriasis* by its distribution on the flexor surfaces of the limbs and palms and soles.

(2) **Syphilitica Lupus.** In this condition, the ulceration of the skin is fairly extensive and spreads rapidly with pigmentation of the central scarred area.

(3) **Rupia.** This condition is more a chronic one and consists in the piling-up of scabs over the floor of an ulcer.

(c) **Tertiary Syphilis (3rd stage).** This stage is varied in its onset. It usually appears within about a year to eighteen months after infection, in untreated cases, but may manifest itself at any time during the patient's life. This stage is characterised by a spherical inflammatory mass on the skin, known as *Gumma*. These *Gummata* may involve many varieties of tissue, such as, muscle, bone, etc. in one area. This point helps to differentiate it from cancerous growth which tends to remain localised in one tissue.

These gummata are followed by fibrosis and scarring. The soft, cheese-like mass of the gummas is usually yellowish in colour, as opposed to greyish-white seen in tuberculosis. The gummata are either localised or diffuse. The *Localised Gumma* present a rounded thickening in the tissue, and the mass tends to enlarge slowly and softens at the centre, where necrosis occurs. These gummata are frequently multiple and may coalesce, when they tends to heal, but frequently break out again and become secondarily infected and show pigmentation. On healing ultimately, the gummata are frequently seen in the skin, liver, muscles and skull bones. The *Diffuse Gummata* are not localised to any single variety of tissue, but involve all the structures in the area indiscriminately. The condition is painless,

unless it occurs in a dense tissue like the bone, and in that case, the pain is severe and is aggravated by heat or congestion of any kind. This type commonly affects the bones, meninges, testis, synovial cavities and sometimes, cellular tissues and the muscles.

(c) In addition to these three stages, there is a stage much later than the third stage, when para-syphilitic lesions appear which are either :

(1) cardio-vascular lesions due to degenerative changes in the walls of the blood-vessels, such as, aortic aneurysms, and aortic valve degeneration, or

(2) nervous lesions of the brain and the spinal column, such as, **General paralysis of the insane**, and **Tabes dorsalis** (locomotor ataxy) which have been dealt with in Chapter X.

Diagnosis :

This is made by

- (i) the history of the exposure,
- (ii) clinical symptoms of hard chancre,
- (iii) laboratory methods of examination (Wasserman complement fixation test),
 - (a) pus in the first stage, when organisms are in abundance,
 - (b) blood serum in late primary or secondary and early tertiary stage,
 - (c) cerebral spinal fever in later tertiary and parasyphilitic stages.

Differential Diagnosis :

The diagnosis of syphilitic hard chancre in the primary stage is usually easy, for it presents the local induration and glandular enlargement of the lymphatics. Occasionally, however, difficulty may be experienced, if a *soft chancre* or *chancroid*, as a result of secondary infection with *Bacillus of ducrey* exists side by side with the hard chancre. In such a case, very careful examination of the serum from both the ulcers and the lymph nodes should be carried out to isolate the *Treponema* from the *bacillus of Ducrey*.

Prognosis :

The prognosis of syphilis is now better with the recognition of the infected organism early in the primary stage to be able to commence proper treatment

CHANCROID

Chancroid or soft sore is an acute venereal infection, characterised by ulceration of the site of inoculation in the genital area, due to infection with the *Haemophilus ducreyi*. A bubo develops within a week of infection, and the glands, adherent to it, become red and tender. Sometimes they suppurate. Diagnosis is made by culture from the bubo. The disease is often mild and usually resolves simultaneously. Complications are uncommon.

CONGENITAL SYPHILIS

Definition :

When the syphilitic infection is transmitted by either parent to their offspring before birth, the disease is called *Congenital Syphilis*. It is possible that in case of pregnancy of the infected mother, there may be several miscarriages of dead foetus, but gradually a premature or full-time living child may be born which may show signs of the disease on birth, though usually it is after about six weeks that signs of emaciation become evident, leading to the suspicion that there might be a syphilitic taint.

Etiology :

(1) The disease may be transmitted to the ovum of the female from the infected spermatozoa during fertilisation.

(2) It may also occur through circulation via the placenta at any period of pregnancy.

(3) It can be acquired from the mother in passages during birth. In this case, it is expected that a primary sore would be seen on the child after birth. This condition, however, has not been noticed so far in any case. Other interesting factors are :

(a) The parents of syphilitic children are immune from acquiring the disease from their off spring who are already infected with the disease.

(b) A healthy wet nurse always acquires the infection from such a child.

(c) Children infected with this disease are infectious to healthy persons and other children. But in a vast majority of cases, they cease to be infective after puberty.

Symptoms and Signs :

(1) As a rule, the child is healthy for the first month or six weeks after birth, but begins to become thin and wasted. After that it vomits its food, is fretful, and shows a wrinkled, dull earthy skin with a pinched face of an old man or a monkey.

(2) The child is anaemic and has marked enlargement of the liver and the spleen.

(3) Often, there is discolouration of the skin of the palms and soles.

(4) Presence of a dull coppery rash about the nates and the groins, which, if moist and unclean, become infected to give the appearance of condylomata.

(5) Occasionally, masses of stinking bullae are seen.

(6) Catarrhal inflammation of the mucous membranes is common, particularly of the nose, which ultimately causes *sunken bridge of the nose*.

(7) Bronchial and pulmonary symptoms are also there.

(8) Otitis media and gastro-intestinal symptoms are also not uncommon.

(9) Later, the degenerative changes manifest themselves in the third stage and may appear, if the disease remains untreated, such as, bone changes, gummata, affection of joints, teeth, ears, eyes, and occasionally epididymo-orchitis and para-syphilitic lesions.

Differential Diagnosis :

The diagnosis may present difficulties when this disease is to be differentiated from

(i) rickets,

(ii) and congenital gastrointestinal disturbances. But rashes or bone lesions should decide the issue in the latter case ; while the rickety child with its head thick and abdomen protuberant should easily lead to the correct diagnosis in the former case.

Treatment :

General : (1) In all syphilitic cases, smoking should be prohibited,

(2) In inveterate cases purely vegetarian diet will often be of service.

Curative :

(a) Primary Stage :

(1) **Mercurius Sol.** Mercurial preparations are to be first employed both in hard and soft chancres. Indications are fever, soft and hard chancres, sore-throat, nocturnal pains make the patient sleepless; chancres and ulcerations have dirty and starchy bases which bleed easily.

(2) **Mercurius Cor.** To be used in syphilitic ulcerations, which are snake-like with ragged and corrosive edges.

(3) **Mercurius Proto-iodide.** Hard chancres, painless, corrosive ulcers.

(4) **Mercurius Dulcis.** Infantile syphilis, congenital cases, within the mouth and the throat.

(5) **Guaiaecum.** When the original sore takes long to heal ; hard, long-lasting oedema of prepuce, syphilitic sore-throat.

(6) **Arsenicum.** A very useful remedy, when the chancre assumes a corrosive, gangrenous appearance with intense burning.

(b) Secondary Stage :

(1) **Calotropis** to be used in the secondary symptoms of syphilis, where mercury has been used, but cannot be pushed safely any further. It rapidly recruits the constitution, heals the ulcers and blotches from the skin and perfects the cure.

(2) **Cinnabaris.** Useful both in secondary and tertiary stages, especially in scrofulous subjects.

(3) **Kali Bichromium**. It is useful when ulcerations are deep down into the tissues, particularly of the mouth and the throat.

(4) **Kali Iodide**. Infantile coryza and the scaly syphilitic rash in syphilitic children.

(5) **Hepar Sulph**. Generally it is an antidote to mercury, and hence this is a good remedy, where mercury administration has preceded the Homoeo treatment. Its special symptoms in syphilis are : chancres with diffuse borders and red bases with sticking pains in them, secreting a watery pus ; also in swollen glands, with a suppurative tendency and accompanied with nightly pains and chilliness.

(6) **Nitric Acid**. This is also a remedy for secondary syphilis and mercurial cases, where chancres bleed easily and have splinter-like pains. The buboes are inclined to suppurate, copper-coloured spots on the body ; or ulcers in the throat are irregular in outline with sticking pains in them, soreness of the skin and cranial bones.

(7) **Carbo Animalis**. Copper coloured blotches on the skin, especially on the face, hardness of the inguinal and axillary glands, which are as hard as stone, and this hardness extends to the surrounding tissues.

(8) **Aurum. Met**. Secondary syphilis with ulceration in the mouth, especially in cases complicated with mercurial treatment, more especially, when the nose is implicated and there are caries of bones, giving a stinking discharge with pieces of bones ; pains in the bones of the face. This medicine has tertiary symptoms also. Note that **Aur. Mur.** is sometimes a better remedy than Aurum, Met.

(c) **Tertiary Stage**. The remedies for this stage that have already been explained are :

(1) Nit. acid ; Kali Iodide : Aur. Mur ;

(2) **Corydalis**. Gummata and night pains ; lymphatic glands swollen.

(3) **Platinum Mur**. This is to be used ; after *Kali Iodatum* has failed in syphilitic affections, the symptoms being occipital headache, dysphagia ; syphilitic throat ; and bone affections (caries of bones of feet).

(4) **Stillingia**. Suits severe pains especially in the long bones and nodes on the head and skin bones.

(5) **Syphilinum (Lueticum)**. In suppressed and latent syphilis with nightly pains.

(6) **Thuja**. Moist excrescences on the prepuce and glands indicate this remedy in syphilis in suppressed cases.

(7) **Phytolacca**. Useful in syphilitic rheumatism with pains at the attachment of muscles ; worse at night and in damp weather.

(8) **Kali Iodide**. In the tertiary stage, its manifestations are : gnawing bone-pains ; throbbing and burning in the nasal and frontal bones. Papules which ulcerate and leave scars : rupia (a late manifestation of syphilides). It antidotes mercury also.

CHAPTER—VI

ENDOCRINE SYSTEM AND LYMPHATIC GLANDS INCLUDING SPLEEN

A. LYMPHATIC GLANDS

I SPLEEN

II OTHER LYMPHATIC GLANDS

B. ENDOCRINE GLANDS

I THYROID

II PARA THYROID

III SUPRA-RENAL

IV PITUITARY BODY AND HYPOTHALAMUR

v Hypothalamus- PITUITARY

ENDOCRINE SYSTEM AND LYMPHATIC GLANDS INCLUDING SPLEEN

(A) LYMPHATIC GLANDS

I—SPLEEN

Like other lymphatic glands, spleen is the biggest mass of lymphoid tissue. There is rarely any primary disease of the spleen, but it is involved in many bodily infections and the diseases of blood. The patient generally is not able to describe or feel the symptoms, but the physician can find out the pathological signs by physical examination.

It may be noted that complete removal of the spleen is consistent with perfect health, and its physiological functions can undoubtedly be taken on by other organs. In adult life the spleen as part of the reticulo-endothelial system, plays an important part in the destruction of red blood corpuscles and in the metabolism of iron. It also acts as a store house for a surplus supply of red corpuscles which can be readily mobilised into the general circulation when required, as for instance, after severe haemorrhage. It may also be concerned in the formation of antidotes as a reaction to infection.

PHYSICAL EXAMINATION

There are three main signs to be observed by the physician in relation to the diseased spleen :

- (1) Its size, to know if it is enlarged.
- (2) If it is enlarged, whether it is soft or hard.
- (3) and to know if any pain is felt on pressure.

By Inspection :

The inspection will reveal the shape of the spleen (rarely the outline) which lies in the left hypochondrium. The shape of the much-enlarged spleen may be visible as an oblique tumour moving with the respiration, especially when the abdominal wall is thin.

By Palpation :

Palpation is a better means of knowing whether the spleen is enlarged or displaced. For this purpose, the abdominal muscles should be relaxed in a recumbent position with knees drawn-up. To know if it is enlarged only slightly, the observer should sit on the right side of the patient, and place his warm right hand flat on the abdomen, so that the fingers may be just below the anterior ends of the 10th and 11th rib. He should, then, gently press the fingers, while the other hand pushes the spleen up at the flank. The patient should take a deep breath. If the spleen is enlarged, it will be felt, as if coming down, by the fingers of the right hand. If the spleen has thus been felt, its size and movement should be noted with the respiration. The palpation will also indicate whether it is soft or hard, and whether there is any pain in the region. Hardness denotes chronic enlargement. The pain may be due to inflammation or congestion. The cause of displacement upwards is the distention of the abdomen by some fluid or gas, and that of displacement downwards by an increased pressure from the organs of the chest, as in pleurisy, emphysema, new growth, or pneumothorax.

By Percussion :

The borders of a normal spleen cannot usually be defined by percussion to determine its exact size ; for the spleen may be so covered by the lung that it may be impossible to be sure of its exact limits. It is only when the spleen is enlarged that the anterior and posterior parts can be marked. The anterior part is defined in a lying position. But for defining the posterior part, the patient has to sit up with his left hand supported on the top of his head.

To define the upper anterior edge, percussion should be done lightly along the 10th rib, beginning near the costal edge. Dullness will be felt at the *mid-axillary* line.

The lower end of the anterior edge may be felt about the lower border of the 11th rib, and is defined by percussing lightly upwards.

To make out the upper posterior border, heavier percussions are required. It is defined by percussing vertically downwards about midway between the posterior axillary and scapular lines. At about the edge of the 9th rib, where the lung resonance becomes dull, the upper limit will be reached.

The posterior lower border is determined by percussing along the 10th rib, beginning near the middle line. The dullness will be reached about $1\frac{1}{2}$ " from the vertebral spine. This border is not always easy to define.

By Auscultation :

Stethoscope will make the observer hear the friction sound over a wide area of the spleen in splenitis and on the affected part only, when complicated with endocarditis.

DISEASES OF SPLEEN

Splenic Enlargement (Splenomegaly)

Definition :

Splenomegaly is an enlargement of the spleen. This enlargement may be classified into :

(1) acute cases in which there is a slight enlargement, or in which there is moderate enlargement,

(2) and chronic cases in which there is much enlargement. The *Acute form* consists of more or less copious accumulation of blood within the gland by which its volume may become slightly or moderately enlarged. The *chronic form* consists of an enlargement which may resemble a semi-solid, transparent boiled sago. In such a state, the spleen is known as "Sago Spleen."

Etiology :

Splenic enlargement may occur in a variety of morbid conditions :

(1) In acute infective conditions, *e.g.* typhoid fever, septicaemia, acute bacterial endocarditis.

(2) In chronic infections, *e.g.*, tuberculosis, congenital syphilis, possibly Hodgkin's disease, glandular fever.

(3) In protozoal infestation, *e.g.* malaria, kala-azar.

(4) In diseases of blood and blood-forming organs, *e.g.* pernicious anaemia, the leukaemias, acholuric jaundice, polycythaemia, and splenic anaemia.

(5) In conditions where there is interference with the circulatory system of the spleen, *e.g.*, thrombosis of the splenic vein, cirrhosis of the liver or splenic infarction.

(6) In conditions in which the spleen appears to store metabolites, *e.g.*, amyloid disease.

(7) In very rare instances of neoplastic secondary deposits, *e.g.*, melonotic sarcoma. It may be noted that in the above diseases, splenic enlargement is not the most important feature.

Symptoms and Signs :

(1) The enlargement can easily be detected by palpation and auscultation at the acute stage. In the chronic stage, the enlargement is usually very great and is observed by the roundish apex of the spleen and the notch on its inner edge.

(2) A rather dull pain is felt in the region of the spleen, which is generally increased by motion, pressure, deep breathing and lying on the left side.

(3) The physical effects of enlargement by pressure are :

(i) dyspnoea.

(ii) and gastro-intestinal disturbances.

Treatment :

Curative : (1) **Aranea Diadema**. Specially useful for the chronic effects of malaria and the effects of living in damp and wet places. Languor, lassitude, constant chilliness are useful indications.

(2) **Capsicum**. Recommended for a sensitive, swollen and enlarged spleen.

(3) **Ceanothus**. It chiefly acts on the spleen and is believed to be a true remedy. Indications are : deep-seated pain, worse in damp weather ; enlarged spleen ; pain in the whole of the left side with shortness of breath.

(4) **Chininum Sulph**. Congestion, inflammation and enlargement of spleen.

(5) **Grindelia Robusta**. It has pain in the left region extending to hips ; enlargement and tenderness of spleen.

(6) **Natrum Mur** Swollen and enlarged spleen with stitching pain, due to malaria ; patient anaemic, upper part emaciated ; inclined to take cold ; much quinine taken ; craves salt.

(7) **Cimicifuga**. For neuralgic pains in the splenic region with uterine troubles.

(8) **China**. Splenitis, swelling, pain and stitches in the splenic region, physical or mental effort makes the symptoms worse.

(9) **Ranunculus Bul**. In soreness, stitches and pulsations in the splenic region.

(10) **Scilla**. For pains relieved by lying on the right side.

(11) **Chelidonium**, **Barberis Vul**; and **Conium** are also good remedies for stitching pains in the splenic region.

(12) **Arnica**. For splenitis from injury with dull and acute pains.

(13) **Bellis Perennis**. For swelling in the splenic region.

SPLenic ANAEMIA : (Banti's Disease)

Definition :

Anaemia (splenic) is a disorder created by the deficiency of red-blood cells or their haemoglobin. Splenic anaemia is, thus, the anaemic condition of the blood in the spleen gland due to its long-standing accumulation and consequent stagnation, disintegration in the long run, and a progressive anaemia (Banti's Disease) in association with splenomegaly, anaemia, leucopenia (decrease of white corpuscles) haemorrhage, cirrhosis of liver and a tendency to haemorrhage, especially from stomach.

Etiology :

The cause of this disorder is yet unknown. But this much is certain that congestion or accumulation of blood is caused by an increased pressure on the portal or splenic vein from the morbid conditions of a neighbouring organ, such as, cirrhosis of liver or venous thrombosis, and blocking-up of splenic arteries. From this, degenerative changes follow in due course, *i.e.* splenic changes appear first and hepatic fibrosis subsequently.

Symptoms :

(1) The attack is sudden.

(2) Languor, lassitude, haemorrhage from stomach, nose-bleeding and a general feeling of illness are the main symptoms.

Signs :

(1) The spleen gradually is enlarged to three times its normal size.

(2) After 2 or 3 years, the liver gets enlarged.

(3) Signs of cirrhosis, ascites, and jaundice appear.

(4) Examination of blood shows decreased haemoglobin content in blood, and white cells slightly diminished.

(5) Periodic fever may also be present.

(6) The patient suffers from the symptoms common to all anaemias, viz. breathlessness, pallor, palpitation and lassitude. A haemic murmur is often present at the base of the heart.

Prognosis :

Death may take place by asthenia and occasionally by syncope or haemorrhage. Otherwise, the patient may live for ten, twelve, or even twenty years.

Differential Diagnosis :

This disease has some resemblance to kala-azar. The differentiating points are :

(1) That this takes a much longer course, lasting for years.

(2) And is usually without fever.

(3) Though leucopenia is marked, yet eosinophils are not much reduced.

(4) Absence of any enlargement of lymphatic glands is also there, and a tendency to haematemesis from time to time exists.

Treatment :

Refer to *splenomegaly* for remedies on splenic disorders. If the patient does not improve and cirrhosis has not set in, removal of spleen by surgical means is recommended. *Natrum Mur.* is the chief remedy for congested and swollen spleen, resulting in anaemia and emaciation of the upper part of the body.

HYPERSPLENISM

Definition :

The term *Hypersplenism* denotes a syndrome in which enlargement of spleen is associated with haemolytic anaemias, chronic malaria, and Hodgkin's disease. In this condition, surgical removal of spleen gives relief.

Etiology :

The enlargement of spleen may be due to a variety of pathological causes. In fact, any condition causing splenomegaly may cause hypersplenism as well. The spleen in some way inhibits the final maturity of the red and white cells in the marrow, and depresses the rate of their discharge into circulation. At the same time it must be admitted that all enlarged spleens do not cause hypersplenism.

Symptoms and Signs :

(1) Hypersplenism is often prominent in patients, suffering from a disease in which splenomegaly is marked. In Hodgkin's disease, for example, the patient may begin to show progressive anaemia. These complications may be followed by purpura and haemorrhage.

(2) Slight jaundice of haemolytic type is sometimes present.

(3) Blood picture shows progressive normocytic anaemia.

(4) The white cells' count is low, due to a fall in the number of granulocytes.

(5) The platelet count is somewhat diminished, particularly in patients who are haemorrhagic.

Treatment :

As under "SPLENOMEGALY" "Splenic anaemia" and other anaemias.

II—DISEASES OF OTHER LYMPHATIC GLANDS

Introduction :

The lymphatic capillaries form a rich network between the cells of an organ, and the excess tissue fluid is conducted by valved

channels of an increasing size to regional lymph nodes (lymphatic glands) and thence to the veins. The lymphatic glands often get enlarged, and so their function is disturbed. During this morbid state, we must note :

(1) the locality of this enlargement and if it is evenly distributed,

(2) whether the enlargement is hard, soft, or elastic ; painless or painful ; and what is the rate of progress of the enlargement,

(3) whether the attack is acute and suppressed with fever or without fever,

(4) what is the colour of the outer skin, if it has got a tendency to ulcerate,

(5) if acute enlargement is generally caused by septicaemia or any localised septic focus, or by an infective agent,

(6) that the glandular enlargement is generally observed at the neck, armpits, groins, scalp (posterior), temporal region, or mouth,

(7) if the chronic enlargement is due to syphilis, tuberculosis and filariasis, chronic septic infection, lymphatic leukaemia, Hodgkin's disease and a few other diseases.

HODGKIN'S DISEASE (Lymphadenoma)

Definition :

This is a disease, characterised by progressive enlargement of lymph glands, usually beginning in one group and spreading to other groups and associated with excessive formation of cells (hyperplasia) of lymphoid tissue in the spleen, liver and other organs with anaemia.

Etiology :

This is still indefinite and unexplored. There are two theories, which have so far not been fully established,

(1) that it is transmitted by infection,

(2) that it is a kind of cancerous growth. The first one could not be established as a causative factor yet, but the second is still believed to be the etiological factor on the plea of some experimental

data. Overactivity of the diffusely scattered cells carrying bacteria (reticulosis) is now thought to be the main factor. This is a rare disease of the adult males, specially below 40 years of age. It may coexist with tuberculosis, and may be a secondary infection from pyaemia, tuberculosis, leukaemia, or syphilis.

Symptoms and Signs

The onset of the disease is usually gradual and the first symptom noted *i.e.* enlargement of lymph nodes is usually in the neck but sometimes in the axillae and rarely in the loins.

(2) Later as the disease progresses, other groups of lymph glands become involved and the patient loses weight, becomes anaemic and sometimes suffers from pressure of the glands on neighbouring structures. The symptoms referable to various organs are described separately below :

(a) **Lymphatic glands.** The typical glands of Hodgkin's disease are enlarged and with no tendency either to adhere to the skin or to the deeper structures ; on palpation they feel elastic, but in later stages become harder. They are neither painful nor tender. Eventually most of the glands in the body get affected but the most common site for glandular enlargement is the posterior triangle of the neck, on one or the other side. Adhesions to the skin very occasionally occurs.

(b) **Spleen.** This is enlarged in about 40% of cases and is not tender.

(c) **Cutaneous manifestation.** Pruritis is sometimes an early symptom. More rarely there are small deposits of lymphadenomatous tissue in the skin.

(d) **Lungs.** Enlarged mediastinal glands may compress the lung. Pleural effusions occur in later stages due either to pressure on vein or to direct involvement of the Pleura.

(e) **Blood** Sooner or later a severe anaemia develops. Eosinophilia above 10% is found in about 10% of cases.

(f) **Pyrexia.** Nearly all cases are febrile. The fever is low and irregular generally and resembles that of pernicious anaemia and other blood diseases. Sometimes fever for 5-10 days continues with remission. In such cases there is enlargement of mediastinal glands.

(g) **Nervous System.** Pressure of enlarged glands upon nerves often gives rise to pain. Occasionally paraplegia develops as a result of pressure on the spinal cord.

Differential Diagnosis :

Hodgkin's disease. Spleen moderately hard, but not tender. The lymph glands are generalised, firm, and tender. Liver also moderately enlarged.

Splenic Anaemia. Huge enlargement of spleen, but no tenderness and hardness. Lymph glands do not swell. While spleen goes on enlarging, the liver begins to atrophy at a later stage.

Prognosis :

Cure is difficult and almost impossible, but in a slowly-progressing case, the life may be prolonged for a good long time.

Treatment :

- (1) **Arsenic or Arsenic Iodide.** When there is fever.
- (2) **Calc. Fluor.** When the gland is indurated.
- (3) **Baryta Iodide.** This acts on lymphatic glands.
- (4) **Iodine** is a glandular remedy, when the patient is emaciated, in spite of good eating.

Note : A course of Baryta Iodide, Arsenic Iodide, and Ferrum Iodide (each in 3X potency), if given thrice daily for two weeks, will generally relieve the trouble.

(B) ENDOCRINE GLANDS **(Ductless Glands)**

I—THE THYROID

The thyroid gland develops from a median outgrowth from the floor of pharynx descends into the neck, where it bifurcates and

together with two bronchial bodies forms the thyroid lobes. The normal adult gland consists of two lateral lobes, the parathyroid gland occupying posterior aspect of the parathyroid. These lateral lobes are joined at their poles by an isthmus. They weigh 20-30 gms. Usually the thyroid is situated in the neck but sometimes it is partially or wholly retrosternal.

The function of the thyroid gland is to synthesize, store and secrete the two thyroid hormones (thyroxine and tri-iodothyroxine) of which iodine is an essential constituent. Thyroxine is the principal hormone of the thyroid gland. The diseases of the thyroid are associated with either the increase or the decrease of the size or the function of the thyroid. These diseases are called Hyperthyroidism and hypothyroidism.

DISEASES OF THYROID HYPOTHYROIDISM

(Adult Hypothyroidism)

Myxoedema

Definition :

Myxoedema (meaning mucous swelling) is the term used to denote the diminished thyroid function of the thyroid gland of patients who appear oedematous. It is not true oedema as it does not pit on pressure.

Hypothyroidism & myxoedema differ from each other, because all myxoedema patients do not show diminished thyroid function and all patients who are suffering from lack of hormone show myxoedema. The latter is a condition in a chronic disease of adults, characterized by a low-basal metabolism, increase of weight, thickening of the skin and mental disturbances. It is more common in women than men between the ages of 30 & 50 years with a particular prevalence at the time of menopause.

Etiology :

The cause of thyroidism is often not clear. In the past, it was attributed to idiopathic atrophy.

2. It is probable, but not quite settled, that most cases are the end result of Hashimoto's thyroiditis, as antibodies to thyroglobulin can usually be demonstrated except in long-standing cases.

3. A secondary form of thyroidism is sometimes distinguished due to the failure of pituitary to secrete TSH (Hormone). This is one feature of hypo-pituitarism (Simmond's disease).

4. The changes found apart from that in the thyroid are the result of thyroxine and can fully be restored to normal by replacement therapy.

(5) Hypothyroidism may be associated with a goitre due to any of the causes listed for the goitre.

(6) The disease may follow thyroidectomy or treatment with radioactive iodine.

Symptoms :

(1) The symptoms are the result of lowered metabolism and slowing of physical metabolic and mental activity.

(2) The onset is gradual and occasional mental activity is depressed.

3. There is sensitivity to cold, weakness, tiredness, stiffness, gain in weight, poor appetite, constipation, loss of hair, tingling of hands, dry skin, disturbance of menstrual function, hoarseness, deafness, rheumatism, vague muscular pain.

Signs :

(1) There may be myxoedema and mania with hallucinations.

2. The face appears swollen with puffy eyelids, thick and enlarged tongue.

3. The skin is pale and may be thickened with myxoedema.

4. Sometimes, a malar flush is found.

5. Sweating is absent and some areas are rough and scaly. Speech is slow, monotonous and often hoarse and croaking.

6. Mental impairment is indicated, poor memory, no sense of time, apathy and drowsiness.

7. Pulse slow but a possible tachycardia, if there is congestive heart failure.
8. Coronary deficiency with a possible angina pectoris.
9. The body hair is sparse and short.
10. Usually low blood pressure may be present.
11. Blood examination may show anaemia and cholesterol may be raised.

This description applies to a fully developed case but milder degrees of hypothyroidism with mental apathy, poor memory, anaemia, dry skin and rheumatism are common in the meno-pausal or the post meno-pausal females and are frequently overlooked, because myxoedema is not present. Patients with myxoedema may occasionally pass into a state of coma similar to that which sometimes complicates hypothyroidism.

Differential Diagnosis

In some persons dry and scaly skin, quick fatigue, lethargy, and hypersensitiveness to cold may be present without obvious signs of myxoedema. The low B.M.R., the diminished intake of iodine, and the high serum cholesterol should settle the diagnosis. Again the presence of oedema in the thickened skin may give the appearance of a generalised dropsy : but myxoedema is distinguished by the absence of pitting on pressure. It is differentiated from *Simmond's Disease* by remembering that the latter has low basal metabolism, sensitiveness to cold, thin skin and loss of weight.

Note : Juvenile myxoedema is a rare condition which makes its appearance during childhood which should be distinguished from cretinism or infantile hypothyroidism. This form develops in children aged 4-12 in whom dwarfism is usually the presenting feature.

INFANTILE HYPOTHYROIDISM (Cretinism)

Definition :

It is a condition resulting from varying degrees of thyroid deficiency in foetal or early neo-natal life and characterized by retar-

ded development particularly marked in the skeletal and central nervous system.

Etiology :

Cretinism may occur in endemic or sporadic forms.

Endemic Cretinism is found in areas of severe iodine deficiency where endemic goitre is prevalent and in most instances, the mother of the affected child has a goitre.

Sporadic Cretinism is rare. Usually it is due to congenital absence of thyroid tissue or failure of embryonic gland to descend into the neck. Thyroid deficiency may also arise from partial or complete absence of one of the several enzymes required for the biosynthesis of thyroidal hormones. In rare cases, cretinism is associated with a goitre and is often a hereditary familial disorder, sometimes associated with congenital defects, such as deafness.

Sporadic cretinism may also occur in an infant born of a hyperthyroidism mother, who has been treated during pregnancy with large doses of antithyroid allopathic drugs which depress thyroidal activity in the foetus.

Symptoms and Signs :

1. The infant is lethargic, falls asleep during feeding, fails to thrive and is constipated.
2. Physical signs may not be visible until the second month.
3. The abdomen is prominent and umbilical hernia is often present.
4. The face is broad and puffy, the nose is flat and the lips and nostrils thickened.
5. The tongue is enlarged and protrudes from the mouth.
6. The skin is dry, thickened and sallow.
7. Supra-clavicular pads of fat make the neck appear short.
8. The fontanelles are slow to close and skeletal development is delayed.
9. The infant's temperament may be subnormal.

10. The hair is often dark, the eyes wide and the infant's cry is hoarse.
11. Dentition is delayed.
12. Mentally the infant is stolid and retarded.

Prognosis :

With early diagnosis and treatment, the signs of deficiency may entirely disappear. Others, not treated early enough, remain idiotic dwarfs, and may have complications that shorten their lives.

Diagnosis :

This is distinguished by other mentally deficient cases by the defective physical development, the particular appearance, and low B.M.R. and the characteristic deposit of fat on buttocks, shoulders and belly.

Treatment :

- (1) **Aethusa**. Idiocy with furore and irritability.
- (2) **Anacardium**. Absent-mindedness, very easily offended, brain-fag and impaired memory.
- (3) **Baryta Carb**. The child is bashful and has aversion to strangers.
- (4) **Bufo** propensity to bite, howling, impatient, nervous and imbecile child who is feeble-minded.
- (5) **Thyroidinum**. Stupor alternately with restlessness ; melancholy with irritability which is worse on the least opposition. The child gets into a rage over trifles. Craving for large amount of sweets. (5X daily 3 times a day).

SIMPLE NON-TOXIC GOITRE**Definition :**

Any non-malignant enlargement of the thyroid gland, unassociated with the hyper-secretion of thyroid hormones constitutes a simple non-toxic goitre.

Etiology :

1. Deficiency of iodine limits the biosynthesis of thyroid hormones and this stimulates the hypo-thalamus to secrete threatened amounts of thyro-trophin-releasing factor and this in turn promotes the adeno-hypophysis to secrete more TSH (a hormone). This compensates satisfactorily for the iodine lack.

2. There are many causes of iodine deficiency. The commonest is dietary.

3. Simple goitre also occurs sporadically particularly in areas where there is iodine deficiency or the patient's habits of eating results thus in a low dietary intake.

4. During pregnancy, development of goitre is common, because the iodine deficiency is intensified by the increased excretions of iodine by the mother's kidneys and the requirements of iodine for the developing foetus.

5. Some women experience thyroid enlargement in association with menstruation and also at the time of menopause.

6. Cough mixtures and asthma cures are also sources of goitre. Extreme amount of iodine taken through these mixtures diminish the production of iodine and the patient develops an iodine goitre and may become myxoedmatous.

Symptoms :

(1) Simple goitre is much more common in women than men and usually develops at the time of puberty.

(2) Initially the gland is slightly enlarged and may remain so or gradually increase in size up to the nodular stage after the age of 30.

(3) The early complaint is of swelling in the neck.

(4) Displacement or distortion of the trachea causes cough, stridor and dyspnoea especially at night.

(5) Compression of the jugular veins causes venous enlargement and facial congestion.

(6) Less commonly there are dysphagia and rarely hoarseness of the voice, suggesting that there is a malignant change.

(7) Haemorrhage due to increase in size or by pressure may be a severe symptom.

(8) Thyroid function is normal and there is hardly any hyperthyroidism, which may, however, develop in the sixth or seventh decade.

Diagnosis :

This is usually obvious on inspection.

Treatment :

(1) **Thyroidinum.** When simple goitre is soft.

(2) **Iodine.** In dark complexioned subjects with dark eyes, who have emaciated looks.

(3) **Calcarea Carb.** In pale subjects of soft fibre with cold moist feet.

(4) **Fluoric acid.** If all the above remedies fail.

(5) **Spongia.** In old hard goitres.

(6) **Other Remedies may be.** Bromine ; Fucus ; Iodothyrene.

HYPER-ACTIVITY

EXOPHTHALMIC OR TOXIC GOITRE : (THYROTOXICOSIS OR GRAVE'S DISEASE)

Definition :

This (Grave's Disease) is an enlargement of the thyroid gland, in which the enlarged gland is hyperactive, and secretes an excess of thyroid hormone (Thyroxine). It is characterised by nervousness loss of weight, and often palpitation and protrusion of the eyeball (exophthalmos). Sometimes skin lesions, or changes in fingers appear.

Etiology :

The ultimate cause for the continual overactivity (Hyperthyroidism) of the gland is not known. It is, however, clear that the function of the thyroid is controlled by an extremely sensitive mechanism, which is easily influenced by many circumstances, and that

thyrotrophic hormone, a secretion from the interior pituitary gland, stimulates the thyroid gland, and causes hyper-tension or overactivity. Hyperthyroidism may, however, result from circumstances, such as seasonal fluctuations, adolescence, pregnancy, accident, infection, partial removal of the gland, lack of iodine and emotional disturbances, as grief, worry, anxiety, frustration and even sexual mania. There is some evidence in favour of a genetic or constitutional predisposition to several disorders of the thyroid gland including hyperthyroidism. Grave's disease is much more common in females than males and usually occurs between the ages of puberty and menopause.

Symptoms :

1. Nervousness, unfounded fears, restlessness, tiredness, undue sweating, emotional outbursts, breathlessness on exertion, tachycardia and palpitation.
2. The patient can tolerate much more cold than those who have an average or even good health.
3. A fine tremor of the hands appears early in many cases.
4. The skin especially of hand is warm and moist.
5. The excess of the thyroxine in blood sensitises the tissues to adrenaline.

Signs :

1. The thyroid gland is enlarged, the slightest disorder or increase in size creates severity of the disorder.
2. Lid retraction can be seen above and below the cornea.
3. Exophthalmus or proptosis occurs *i.e.* the eyes are pushed forward with the swelling of retrobulbar tissues.
4. Exophthalmus is associated with excessive secretion of pituitary hormone and may result in diplopia.
5. There are cardiovascular changes also, *e.g.* sinus tachycardia, extrasystoles and vasodilation. Besides, a collapsing pulse may be noted.
6. Besides, appetite usually increases, slight glycosuria is sometimes found and with this the weight may go up. Arrest of weight suggests control of hyperthyroidism.

7. Occasionally there is passing of loose stools.
8. Amenorrhoea not infrequently occurs.

Differential Diagnosis :

Confusion might arise in diagnosis with diseases, such as

- (1) **Anxiety state**, where the sleeping pulse rate is not high.
 - (2) **Progressive atrophy of muscles**.
 - (3) **Glycosuria** or diabetes mellitus, where the blood sugar is higher
 - (4) and other conditions causing protrusion of the eyeball.
- The final diagnosis is possible only with the determination of B.M.R. or by a therapeutic test with iodine.

Prognosis :

Complete spontaneous recovery may be rarely possible ; but with treatment, improvement can be effected in a large measure, except in severer cases, where jaundice and hepatitis make the chance of recovery very remote.

NON-SUPPURATIVE ACUTE OR VIRAL THYROIDITIS**Definition :**

An acute non-suppurative inflammation of the thyroid gland usually and relatively of sudden onset and associated with constitutional disturbances and sometimes transient hyperthyroidism in the initial stages.

Etiology :

The disease occurs more commonly in women than men and perhaps particular in those who have pre-existing thyroid enlargement. The cause is uncertain but there is more evidence from a rise in antibody titers that a number of different viruses may be implicated. The most common is the coxsackie virus but the influenza and mumps organisms have appeared in some instances.

Symptoms :

- (1) The onset may be sudden with pain and tenderness in the front of the neck which may radiate upwards to the ears.

(2) Sometimes the thyroïdal involvement is preceded by an upper respiratory infection or by a few days of general malaise with tiredness, low grade fever and headache.

(3) The patient complains of sore throat and pain on swallowing.

(4) In first few days of thyroiditis, the patient generally feels ill and has a raised temperature.

(5) During this time there may be symptoms and signs of hyperthyroidism attributable to the sudden release of thyroïdal hormone from the inflamed gland.

(6) The total white cell count is usually normal but there may be a relative lymphocytosis and the sedimentation rate is raised.

(7) Characteristically the plasma thyroxine levels are raised but the acutely inflamed gland takes up little or no radio-iodine.

8. The disease runs a variable course in degree of severity and duration, lasting a few days to several weeks.

9. Relapses are common but usually each recurrence is progressively less severe.

Viral thyroiditis is a more common disease than is generally realised largely because the **Complaint** of sore-throat with dysphagia attracts the attention of the doctor to the oropharynx rather than the enlarged tender thyroid glands.

Treatment :

General : (1) Rest and proper diet ensure recovery in many cases.

(2) The diet rich in carbohydrates plus protein (1 to 2 gm. per kg. of body weight) and low percentage of fat is advised.

(3) Vitamin B Complex and D are also necessary.

(4) Cold applications should be applied to the neck.

Curative :

(1) **Adrenaline 3X.** Suggested for Grave's disease (goitre)

(2) **Belladonna.** In cervical glandular inflammation, it is suitable, when the attack is acute and very painful.

(3) **Iodine.** The remedy is applicable to swellings of gland about the neck, that are large, hard, painless, and sluggish. It is especially useful in goitre, when there is obstruction in breathing. But it must be administered with other combinations of iodides, such

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(4) **Barium Iodide, Merc. Iodide,, Ferrum and Calcareo iodide.**

(5) **Bromine.** Goitre hard with inelastic swelling.

(6) **Calcareo Fluor.** Glandular enlargement, where the hardness is pronounced.

(7) **Fucus V.** A remedy for non-toxic and exophthalmic goitre in obese subjects.

(8) **Iodothyrene.** This remedy affects metabolism and reduces weight ; to be used cautiously in obese patients.

(9) **Lapis Albus.** Goitre, diarrhoea, with anaemic symptoms and increased appetite, elastic (not hard) swollen glands.

(10) **Spongia.** Goitre hard and large with suffocating attacks, swelling with tension and painful to touch.

(11) **Thyroidinum.** Anaemia, emaciation, muscular weakness, sweating, headache, nervous tremor of face and limbs ; tingling sensation, paralysis ; thyroid weakness causes decided craving for a large amount of sweets. The goitre is soft and elastic.

(12) **Lycopus Verginicus.** Of use in exophthalmic goitre, when there is protrusion of eyes and tumultuous action of heart.

HASHIMOTO'S THYROIDITIS

This is a chronic inflammatory disease of the thyroid gland produced by thyroid antibodies and characterized by a goitre. In later stages, hypothyroidism is common. This thyroiditis is much more common in women than men and usually develops between the ages of 30 and 50. The histological changes and the presence in the patient's serum of antibodies in high titre to thyroglobulin and to thyroid cells indicate an acute immune disturbance, but what initiates this disturbance is unknown.

The goitre is moderate sized, smooth and painless and is not large enough to cause pressure symptoms. Symptoms of hypothyroidism develop and the patient presents myxoedema.

II-DISEASES OF PARATHYROID GLANDS

The parathyroid glands are four in number, two on each side of the thyroid at the posterior end or in its fibrous capsule. They have an internal secretion of parathormone to maintain normal level of blood calcium, and phosphorus to ensure steady action of the nervous system. The pathological indications are signs of increased or diminished secretion of parathormone.

HYPER—PARATHYROIDISM

Definition :

Hyper-parathyroidism is a condition, in which there is an increased secretion of parathormone, causing a disturbance in calcium balance, decalcification of bones and muscular wasting and weakness.

Etiology :

Primary hyper-activity of the gland rarely occurs. It may be due to tumourous growth of the glandular tissue of one of the four glands, or too excessive formation of cells in all the glands. It may also be the result of advanced renal disease with diminished calcium utilisation, or phosphorus retention.

Symptoms and Signs :

(1) Due to excessive drainage of both calcium and phosphorus by urine, pain in the bones starts, particularly in the back, the extremities and the pelvis.

(2) Bending of long bones and a spontaneous fracture may take place.

(3) Polyuria and thirst is common.

(4) Vomiting, abdominal pain, exhaustion, wasting, are common.

(5) Anaemia and leukaemia are possible.

Complications :

- (1) Pyelonephrosis.
- (2) Uraemia.
- (3) Pyelonephritis.

Prognosis :

Death may follow from progressive emaciation and weakness, or an underlying kidney disorder.

Treatment :

(1) **For Tumour.** Study Calc. Fluor, Carbo Animalis, Conium, Hydrastis and Arsenicum, if operation is not recommended.

(2) **For Marasmus :** study Calc Phos., Calc. Iodide, Calc. Carb., Iodine, Nat. Mur., Mag. Carb., Sulphur, Hepar Sulph and Baryta Carb.

(3) **For Renal Calculi & Colic.** Berberis vulgaris, Lycopodium, Bell ; Calc. Carb. ; Calc. Renalis ; and Sarsaparilla are some of the remedies.

HYPO-PARATHYROIDISM (TETANY)**Definition :**

This is a condition produced as a result of diminished parathyroid activity with characteristic symptoms of muscular spasm, associated with hyperexcitability of certain parts of nervous system, due to diminished blood calcium.

Etiology :

The concerned factors are :

(1) Vitamin D deficiency, due to loss of calcium internally, or insufficient absorption from food, or in consequence of association of a rickety state in children and osteomalacia in adults.

(2) Gastro-intestinal disorders, such as, long continued diarrhoea, vomiting, pyloric obstruction, or coeliac (wasteful) disease.

(3) over-exertion and excessive carbonic acid gas in blood.

(4) Nephritis treated with big doses of alkalis.

The common cause is the surgical removal of or damage to parathyroids.

Symptoms & Signs :

(1) If the condition is the effect of a surgical operation, the symptoms of painful bilateral muscular spasms which disturb bodily movement and sleep, may appear in two days.

(2) These spasms may be laryngeal, bronchial, (causing dyspnoea), and may be of upper limbs (fingers elbow, wrist etc), of the lower limbs (toes & feet etc), and sometimes the jaw, spine, tongue, eyes, urinary bladder, bile ducts and rectum. These spasms (tonic) continue from a few minutes to several hours or days and cause severe pain.

(3) These symptoms may extend to abdomen & intercostal spaces.

(4) Nervous excitability causes signs. Later on, the skin becomes dry ; the nails become brittle and teeth have caries ; the vision becomes dim.

(5) Rarely cardiac palpitation occurs.

Prognosis :

Cure is possible, if treated early. In chronic cases, the condition gradually aggravates. Recovery from tetany should not induce a false sense of security.

Diff. Diagnosis :

Tetany is to be differentiated from epilepsy by its

- (1) bilateral character of spasm (both hands and feet)
- (2) nervous and muscular irritability.
- (3) low calcium level and high phosphorus.

Treatment :

General : Diet should be phosphorus free. Milk is a suitable diet. Treatment should be resorted to according to individual complaints for

- (1) spasm or convulsions.
- (2) constipation.
- (3) neurasthenia etc.

Aconite and *Thyroidinum* are two principal remedies.

III. DISEASE OF SUPRA-RENAL GLANDS

ADDISON'S DISEASE (HYPOFUNCTION)

Definition :

This is a chronic condition of deficient internal secretion of hormones from the ductless adrenal glands, and their progressive destruction, characterised by extreme debility, wasting, brown pigmentation of skin and mucous membranes, low blood pressure, vomiting, and loss of appetite.

Etiology :

True Addison's disease which attacks adults of either sex between 25 and 50 years, is a rare condition. There are two major causes of this condition.

(1) Tuberculosis of the adrenal glands.

(2) or Atrophy of the glands from their disorder, or possibly of the pituitary gland. Other causes may be :

(i) Leukaemic infiltration.

(ii) Amyloidosis.

(iii) or Haemorrhagic disease or carcinoma in its vicinity by metastasis.

Symptoms :

(1) Loss of appetite.

(2) Rapid and undue fatigue.

(3) Nausea and vomiting.

(4) Constipation or diarrhoea.

(5) Dizziness and stupor.

(6) Epigastric pain.

(7) Mentally deficient and irritable.

Signs :

(1) Progressive loss of weight or debility is the most marked feature.

(2) Muscular wasting.

(3) Brownish pigmentation of the skin and mucous membrane, starting with the face and spreading on the neck, hands, forearms, penis, scrotum, vulva, armpits, nipples, and skin lying over the bones.

(4) B.M.R. is often low.

(5) Blood pressure often low.

(6) Often decreased serum sodium and chloride levels, and increased serum potassium concentration.

(7) Raised blood urea and haemoglobin.

(8) Dehydration.

Complications :

Occasionally higher or hypothyroidism or glycosuria may complicate the disease.

Diff. Diagnosis :

(1) Addison's disease is distinguished from cancer of pylorus, showing sallowness of skin, by its distinctive symptoms of low blood pressure.

(2) The distinction between adrenal insufficiency due to Addison's disease and secondary to pituitary failure is that pigmentation does not occur in the latter.

Prognosis :

Prognosis is not quite favourable and sensitivity may make the chances of recovery still remote.

Treatment :

(1) **Arsenicum**. This is the most effective remedy to arrest the progress of the disease on the following indications ; nervous depression ; gastric irritation ; general debility ; feeble heart action ; tendency to vomit ; burning and discolouration of skin.

(2) **Antimonium Crudum**, **Nitric Acid**, **Secale** and **Spigelia** have the indication of bronzed skin.

(3) **Argentum Nitricum** : is a useful remedy, when the symptoms are : loss of appetite, muscular wasting and diarrhoea.

(4) **Thuja and Natrum Muriaticum.** These remedies have special indications of languor, muscular fatigue, indigestion, melancholia etc.

(5) **Belladonna, Calcarea Carb., Iodine, Phosphorus, Arsenic Iodide and Tuberculinum** are generally indicated in this disease at some stage or the other.

(6) The other useful remedies are : Adrenaline ; Calcarea Ars ; Supra-Renal extract ; Silicea.

ADRENO-GENITAL SYNDROME : (HIRSUTISM) (Disease of Gonads)

Definition :

It is also known as *virilism*. It is characterised by hirsutism (growth of hair on face and body of the female) with amenorrhoea or oligomenorrhoea. There are two clinical types :

- (i) Adiposity except that of the forearms and legs.
- (ii) Hyper-development of muscles of a male type.

Etiology and Pathology :

The immediate cause is hypersecretion of endrogen (hormone) by the adrenal cortex, due to the new growth of an adenoma, or a carcinoma, or hypertrophy of adrenal cortex.

TUMOUR OF ADRENAL MEDULLA

These may be benign or malignant. Those arising from chromaffin cells of medulla are termed pheochromocytoma and contain a large quantity of adrenaline. The latter is secreted into the blood paroxysmally, producing hypertension, crisis at intervals, in a previously healthy young adult. During this temporary rise of blood pressure, the patient may complain of agonising headache, pallor, palpitation, sense of constriction in the chest, nausea, and vomiting. These attacks may occur at increasingly frequent intervals, giving rise to arteriosclerosis and ischaemic fibrosis of kidneys. Early removal of the tumour may result in radical cure.

Treatment :

TUMOUR should be removed surgically.

CUSHING'S SYNDROME (HYPERFUNCTION)

Definition :

Cushing's syndrome is a condition of virility in females, or of feminism in males, characterised by obesity, lower sexual function, loss of bony strength, hyperglycaemia (excessive sugar in blood), Glycosuria (sugar in urine), and hypertension.

Etiology :

The immediate cause is hyperfunction of the pituitary basophil cells and of the adrenal cortex, due to an adenoma, or even a carcinoma in the pituitary, or in the adrenal cortex.

The disease is more common in females in the second and third decades.

Symptoms and Signs :

(1) Fat is deposited on the face, breast, neck, buttocks, and trunk, but not on extremities.

(2) Muscular weakness and excessive breakdown of protein and nitrogen balance.

(3) Hair of the scalp fall and the face and body become hairy in respect of females, if menstruation stops.

(4) In case of man, there is impotency and enlargement of breast.

(5) Puffy face.

(6) Ecchymosis, acne, hypertension, polycythaemia, hyperglycaemia, and glycosuria.

Prognosis :

Some cases spontaneously get cured. Others go down.

Treatment :

The following remedies may be tried :

(1) Calc. ars.

(2) Ammonium bromide.

(3) Thyroidinum.

(4) Iodothyrene.

(5) Adrenaline. See also Chapter on "Tumours", Cancer, and carcinoma.

IV—PITUITARY BODY AND HYPOTHALAMUS

Pituitary gland is a small oval endocrine gland, lying in the depression of the sphenoid bone, a wedge-shaped bone at the base of the skull. It is composed of two lobes, the anterior, and the posterior. The anterior lobe secretes several hormones, having an effect on other endocrine glands. Their general function is to regulate growth and metabolism. They are, therefore, called "Growth hormones". The posterior lobe secretes "Pituitrin" which raises the blood pressure, and stimulates plain muscles and diminishes the flow of urine.

It has a very close link with hypothalamus from which chromo-transmitters are carried to the posterior pituitary for the release of pituitary hormones to the blood stream. A lesion in hypothalamus thus may disturb the carriage of this secretion.

SYMPTOMS AND SIGNS OF PITUITARY DISORDER

Signs :

- (1) Increase or decrease of hormones.
- (2) Adenoma or cysts.
- (3) Sleeplessness.
- (4) Loss of appetite.

Symptoms :

- (1) Amenorrhoea, headache, impaired vision.
- (2) Diplopia.
- (3) Strabismus.

HYPER-PITUITARISM

GIGANTISM AND ACROMEGALY

Definition :

Gigantism and *acromegaly* are both the result of excessive secretion of growth hormones. If the onset occurs before the fusion of epiphyses, *Gigantism* develops with rapid and excessive skeletal growth. *Acromegaly* develops when the onset of excess growth hormone secretion occurs after fusion of epiphyses, and is characterised by overgrowth of many tissues, particularly bones which increase in thickness, but not in length. There is also a striking enlargement of hands and feet and certain elements of head and face.

Etiology :

Gigantism starts in childhood and is usually obvious by 10 years of age. Acromegaly develops in adult life (about 30). The condition is more common in women than men. Gigantism is usually associated with diffuse hyperplasia of cells, while acromegaly with adenoma which expands upwards.

Symptoms :

- (1) The onset of acromegaly is insidious, the face is elongated and enlarged with coarse features, thickened skin, and enlarged lips, tongue and nose.
- (2) Voice becomes husky owing to hypertrophy of larynx.
- (3) Excessive sweating.
- (4) Chest is enlarged, and the spine stiff and painful.
- (5) Tingling and numbness of extremities.
- (6) Nervousness, anxiety, lack of concentration may be suspected.
- (7) B.M.R. is raised.
- (8) Some develop diabetes.
- (9) Polyuria and thirst may be present.
- (10) Amenorrhoea in the female may occur.
- (11) Headache.
- (12) Expanding adenoma may cause visual defects.
- (13) Loss of muscular strength, hypogonadism, and secondary myxoedema may result.

Prognosis :

Prognosis is usually unfavourable, as the disease is progressive. But in benign and mild growths, life may continue for many years.

HYPO-PITUITARISM**(Dwarfism)****Definition and Etiology :**

Due to deficient pituitary secretion of growth hormones, the bodily growth and sexual development is retarded in childhood and in puberty. The mental state, however, may remain normal and general appearance may be good. Other conditions, which generally cause *dwarfism*, should not be confused with this affection. They are :

- (1) Coeliac disease (a condition of wasting.)
- (2) Rickets
- (3) Cretinism.
- (4) Renal rickets
- (5) Achondroplasia (arrested growth of long bones resulting in dwarfism).

Treatment :

Surgical removal of new growths is one treatment. Also refer to remedies in Chapter III on 'Tumours'.

**CHRONIC HYPO-PITUITARISM
SIMMOND'S DISEASE****Definition :**

Simmond's disease is a condition of deficient pituitary secretion (chronic hypopituitary cachexia), resulting from the destruction of anterior pituitary lobe with consequent absence of secretions, which normally stimulate other endocrine glands, especially those of sex, thyroid, and the adrenal glands.

This disease is characterised by impotence in the male and amenorrhoea in the female. It is prevalent far more in females than in males.

Etiology :

Necrosis and degeneration of the anterior lobe of the pituitary or anterior portion following pregnancy or abortion is responsible for hypo-pituitarism. Direct damage to the pituitary may occur from head injuries, haemorrhage into the substance of the lobe, or difficult child-birth, complicated by thrombosis or septicaemia in the female. Granulation may occur from tuberculosis, and sometimes from syphilis, and fibrosis.

Tumours arising within or outside the cells may compress and destroy the pituitary substance.

This pituitary deficiency naturally leads to the atrophy of other glands, particularly those of the adrenal cortex, gonads, and thyroid regions, as the latter depend for their sufficiency on the secretion of the anterior pituitary glandular lobe.

Symptoms :

- (1) These start with weakness.
- (2) Loss of appetite.
- (3) Constipation.
- (4) Failure of lactation.
- (5) Sensitiveness to cold.
- (6) Impotence or amenorrhoea.
- (7) Headache, frontal and temporal.
- (8) Teeth, hair and nails fall.

Signs :

- (1) The skin is pale and wrinkled.
- (2) Heart beat, blood pressure, B.M.R. and blood sugar are all low.
- (3) Occasionally coma.

Prognosis :

If the disease is progressive, chances of recovery are remote. But if the destruction of the lobe is partial, there is a possibility of restoring its normal function.

Diagnosis :

Diagnosis is possible, if the following points are remembered :

(1) That the disorder may follow childbirth. (Puerperium) in which there is severe haemorrhage.

(2) That it should not be mistaken for myxoedema, as there is no adequate response to thyroid in this disease.

(3) Pigmentation in Simmond's disease is either absent or slightly present in the mucous membranes. This symptom will distinguish it from Addison's disease, which has many common features.

Treatment :

(1) *For newgrowths* : Surgical removal or radio therapy.

(2) *During delivery, head injuries require :*

(i) Arnica.

(ii) Ruta.

(iii) Hypericum.

(iv) Rhus Tox.

(v) Bellis Per.

(vi) Symphytum.

(3) *For thrombosis in a severe haemorrhage needs :*

(i) Amm. Carb.

(ii) Kali Mur.

(4) *For post-operative injuries we require :*

(i) Bellis Per.

(ii) Calendula.

(iii) Hypericum.

(iv) Arnica.

V—HYPOTHALAMO—PITUITARY DISORDERS HYPOTHALAMUS OBESITY

Definition :

This is a hypothalamo-pituitary disorder and is due to pituitary deficiency. Certain lesions lie anywhere on the path between pituitary and the third ventricle. This area includes hypothalamus.

Etiology :

A lesion in hypothalamus may produce voracious appetite and thus lead to obesity. This type of obesity may also follow encephalitis. A tumour may compress certain hypothalamic nuclei and bring about an extremely rare condition in childhood consisting of obesity, stunted development, and arrested genital growth. The term is, however, not used for every case of obesity in childhood, but is restricted to cases arising from lesions in the region of thalamus.

Treatment :

The following remedies are suggested :

- (1) Phytolacca.
- (2) Ammonium Carb.
- (3) Calcarea Carb.
- (4) Calcarea Ars.
- (5) Thyroidinum.

DIABETES INSIPIDUS**Definition :**

Diabetes insipidus is a condition caused by deficient secretion of antidiuretic hormone (ADH), characterised by the excretion of large volumes of dilute but otherwise normal urine (free from sugar). The resulting dehydration induces dominant symptoms of thirst and polydipsia. It is a rare congenital male disorder.

Etiology :

(1) Deficient secretion of ADH damages the hypothalamohypophyseal tract which carries the hormone to the posterior lobe of the pituitary for being stored before release to the blood stream.

(2) Sometimes the damage to these structures may be produced by some tumours, benign or malignant by metastasis (from mammary or bronchial carcinoma).

(3) Diabetes insipidus may follow head injuries, intra-cranial operations or hypophysectomy.

(4) Other causes include sarcoidosis, syphilitic gumma, tuberculoma, eosinophilic granuloma, and basal meningitis.

(5) Rarely it is a congenital disease.

Symptoms :

- (1) The first symptom is intense thirst.
- (2) Bed-wetting is often seen in children.
- (3) Polyuria occurs by day and night and disturbs sleep.
- (4) Fluid loss causes dehydration with loss of weight, constipation and sometimes low fever.

Diff. Diagnosis :**Diabetes Mellitus :**

The volume of urine increases, because the excess of glucose present produces an osmotic diuresis.

Hysteria Polydipsia :

This produces polyuria. If fluids are, therefore, withheld for 24 hours, the specific gravity of urine is found to be normal.

Chronic Renal Disease :

Nocturia may be a more prominent complaint than polyuria.

Hyperparathyroidism :

This is associated with hypercalcaemia and polyuria and polydipsia.

The positive diagnosis of diabetes insipidus depends on demonstrating that specific gravity of urine does not increase by withholding fluids, but it does increase by giving intravenous pitressin.

Treatment :

- (1) **Acetic Acid.** For passing large quantities of pale urine, intense thirst, hot, dry skin, and marked debility.
- (2) **Argentum Met.** For profuse, turbid urine of sweet odour. Micturition is frequent and copious.
- (3) **Alfalfa.** Polyuria with increased elimination of urea and phosphates.
- (4) **Arsenicum.** Diabetic gangrene, thirst and emaciation, when there is sudden extreme dryness of mouth and marked physical restlessness, particularly if there are dark watery stools.

(5) **Bryonia**. Dryness of lips, bitter taste, and the patient is languid, morose and dispirited. This is the remedy indicated in a hepatic disease in the beginning of the above symptoms, though the thirst may not be much, nor appetite strong. There is, of course, frequent, and abundant urination with a tendency to skin eruptions.

(6) **Causticum, Scilla and Strophanthus** are also useful remedies, when there is profuse urine day and night.

(7) **Eupatorium Purp.** Profuse urine at night with a constant desire to urinate.

(8) **Phos Acid**. For nervous cases, when urine is increased and is of pale colour with phosphatic deposit.

(9) **Sulphur**. Great quantities of colourless urine, particularly at night.

(10) **Uranium Nitricum**. Copious urination due to dyspeptic conditions.

CHAPTER-VII

HAEMOPOIETIC SYSTEM

(Disorders of Haemostasis)

(DISEASES OF THE BLOOD AND BLOOD FORMING ORGANS)

HAEMOPOIETIC SYSTEM

I—FORMATION OF BLOOD

In early embryonic life, blood cells are formed in the liver and spleen. By the 5th month, blood formation in the foetus begins in the medullary cavities of bones which gradually supersede the liver and spleen. From birth onwards normal formation of blood is restricted to the marrow of both flat and long bones. During childhood and adulthood, there is progressive diminution of red marrow in the long bones, until in the young adult, formation of blood is restricted to the heads of femora and humeri and to the flat bones, such as, the sternum, ribs and vertebrae. An increased demand for blood formation results in an extension of red marrow into the shafts of the long bones. The progenitor of all blood cells is the fixed reticulo-endothelial cell. From this are derived the red cells, the granular series of white cells, the *lymphocytes*, the monocytes and the platelets. (See table on page 640).

RED BLOOD CORPUSCLES

The primitive cell (Proerythroblast) is large with no haemoglobin, and a finely reticulated nucleus containing nucleoli. Under the influence of certain Haemopoetic factors, the early normoblast is derived which is smaller and has a denser nucleus. Complete maturation of this is reached, when the cell is fully haemoglobinised and contains a dense and thick nucleus. The disappearance of the nucleus then completes the formation of the erythrocyte (non-nucleated red cell).

Reticulo-endothelial Cell

<i>Red Blood Series</i>	<i>White Blood Series</i>
Proerythroblast	Myeloblast
Early normoblast	Promyeloblast
Intermediate normoblast	Neutrophil, Basophil, Eosinophil
Late normoblast	

In healthy adult, only mature erythrocytes and a few reticulocytes are to be found in circulatory blood.

Haemoglobin : is formed in the bone-marrow in the maturing red cell. It is a conjugate of a red pigment (haem) and a protein. Haemo consists of a porphyrin combined with ferrous iron. Haemoglobin is the compound which enables the erythrocytes to transport oxygen.

BLOOD DESTRUCTION

The mature red cell probably exists in the peripheral blood for as long as 120 days. Old cells disintegrate in the blood streams, the fragments being taken up by the reticulo-endothelial cells chiefly in the spleen. There the haemoglobin is broken. The iron free pigment bilirubin is carried by the plasma to the liver for excretion. Some of the iron is carried to the bone-marrow for the iron formation of the new haemoglobin, and the remainder is stored in the body especially in the liver and spleen.

While the length of the erythrocytes (red-blood cells) can be fairly accurately determined and that of the platelets has been measured as 9-11 days, there is much more about the length of the life of the leucocyte. The granulocytes probably last for three to four days, but the life of the monocytes and lymphocytes is uncertain.

Destruction of all formed elements of the blood finally occurs in the cells of the reticulo-endothelial system.

II—COMMON ABNORMALITIES OF THE BLOOD CELLS

(a) **Anaemia.** This is said to be present, when the number of red cells or their content of haemoglobin or both are reduced.

(b) **Microcytosis.** The average diameter of the red cell is reduced. This is found in iron deficiency anaemia.

(c) **Macrocytosis.** Here the average diameter of the red cells is greater than normal, for example, in pernicious anaemia.

(d) **Hypochromia.** This exists when the red cells contain less than the normal amount of haemoglobin. This is commonly associated with microcytosis.

(e) **Leucocytosis.** This means an increase in the total number of white cells.

(f) **Leucopenia.** This means a decrease in the total number of white cells below 4000 per c. mm.

(g) **Eosinophilia.** This term is used, when the proportion of eosinophil granulocytes is more than 4%.

(h) **Monocytosis (over 8%).** This is found in advancing tuberculosis, bacterial endocarditis and malaria.

III—BLOOD GROUPS AND TRANSFUSION OF BLOOD

It is important to know that the blood from one person cannot be transfused to another person, unless the blood group of donor is compatible with that of the recipient.

All human beings can be divided into one of the four main blood groups, A, B, AB, and O depending upon the presence of one, or both, or none of the two agglutinogens A and B in the R.B.C. of a particular person. It should also be remembered that in the plasma, the corresponding agglutinins, viz. A and B are present. In short, the plasma of the persons of A blood group will contain B agglutinins; that of B group, A agglutinins; that of AB group, no agglutinins;

and that of O group both agglutinins. Even though grouping has shown that bloods of the donor and the recipient are compatible, these should be cross-matched in every case directly in order to rule out any incompatibility of rhesus factor.

RHESUS FACTOR

Rhesus factor is present in about 85% of human beings. But normally human plasma contains anti-Rh agglutinins. Therefore haemolysis will not occur, when Rh-positive blood is transferred into Rh-negative recipient for the first time. But in such a case, there may occur a slow formation of anti-Rh agglutinins in the recipient after such a transfusion. If after a long interval, a further transfusion from a Rh-positive donor is given to such a recipient, the newly formed anti-Rh agglutinins may produce serious haemolysis. In view of this phenomenon, Rh negative patients should be transfused with Rh negative blood. Rh-factor is of special importance to women during child-bearing age. A Rh-negative woman can become sensitised to Rh-factor by bearing a Rh-positive child from a Rh.-positive husband. Therefore such a woman should never receive transfusion with Rh.-positive blood. Similarly, if she conceives another Rh-positive foetus, the new-born is likely to suffer from haemolytic disease, called "Erythroblastic Foetalis".

IV – ANAEMIAS

Definition :

This is without doubt the commonest blood disorder in clinical medicine and is defined as occurring when the haemoglobin concentration in the blood falls below the lower limit of the normal blood values.

Clinical Manifestations

The symptoms of anaemia depend not only on the severity, but also on the speed at which the anaemia has developed.

Symptoms :

- (1) Acute chronic loss of blood.
- (2) Decreased oxygen carrying capacity of blood.

- (3) Palpitation.
- (4) Dyspnoea on exertion.
- (5) Fainting attack.
- (6) Oedema of the ankles.
- (7) Angina pectoris.

Patients with pernicious anaemia are more likely to develop gastric carcinoma than the normal population.

Signs :

- (1) Pallor of the membrane mouth, conjunctiva, the nail beds, and palmar creases.
- (2) Oedema.
- (3) High pulse pressure.
- (4) Tachycardia.
- (5) Heart failure.

Classification of Anaemias :

The best classification should be based on the causes (etiology) of the anaemias. Anaemia may be due to the following causes :

(1) Lack of essential factors for the formation of either haemoglobin itself or the red cell stroma (*dys-haemopoietic anaemias*). Such factors include iron, Vitamin B₁₂, folic acid, vitamin, protein and thyroxine.

(2) Blood loss in the form of acute or chronic haemorrhage (*megaloblastic anaemias*).

(3) Bone marrow failure (*Hypo-plastic anaemias*) due to lack of erythropoietin because of the action of drugs and unknown causes.

(4) Increased red cell destruction (*haemolytic anaemias*).

(5) Infiltration of the bone-marrow with malignant cells, e.g., *secondary carcinoma, leukaemia*.

(6) Miscellaneous anaemias occurring in the course of other disease (*Secondary anaemias*).

DYSHAEMOPOIETIC ANAEMIAS

These anaemias are due to a deficiency in one of the essential factors for the synthesis of haemoglobin or the manufacture of normal red cell stroma.

PERNICIOUS ANAEMIA (MACROCYTIC)

Definition :

Pernicious anaemia is a chronic disorder primarily of middle and old age due to atrophy of the stomach, mucous membrane, and its consequent failure to produce a factor necessary for the absorption of Vitamin B₁₂. This disease is a very rare occurrence in India.

Etiology :

Deficiency of Vitamin B₁₂ is the common cause of pernicious anaemia. This red cobalt, containing the vitamin is present in foods of animal origin, such as milk, eggs, liver and lean muscles. Its absorption, however, needs the presence in the stomach of a gastric secretion (intrinsic factor) and if this juice is inadequate for the purpose, the person concerned suffers from malnutrition of red blood corpuscles in a progressive pernicious anaemia, both by increased red cells' destruction and their decreased formation.

The fundamental abnormality is in atrophic gastritis with failure of the stomach to produce intrinsic factor. Antibodies to both intrinsic factor and gastric parietal cells may be present.

A family history of the anaemia is quite common, and relatives of patients with this disease may show low Vitamin B₁₂ levels, impaired absorption, and antibodies to intrinsic factor. There is also a racial incidence, being commoner in those of Northern European stock, less frequently found in Southern Europe, and very rarely in Negroes and Asiatics.

Symptoms :

(1) It starts with increasing languor, sometimes soreness of the tongue and occasionally diarrhoeas.

(2) Absence of free hydro-chloric acid in the stomach leads to loss of appetite, flatulence, nausea, vomiting and diarrhoea.

- (3) Severe epigastric pain is sometimes present in some cases.
- (4) Slight fever.
- (5) Weakness.
- (6) Dyspnoea.
- (7) Palpitation.
- (8) Giddiness and faintness.

Signs :

- (1) Glossitis with a smooth glazed tongue.
- (2) Pale complexion skin, eyes, inner mouth and look bloodless.
- (3) Heart is dilated.
- (4) Pulse quick and easily accelerated.
- (5) Tension is low.
- (6) Red blood cells markedly diminished, but haemoglobin comparatively not much reduced.
- (7) White blood cells also reduced.
- (8) Signs of degeneration slowly developing.
- (9) Liver and spleen are slightly enlarged.
- (10) Stool and urine contain bile pigment in excess.

The above indications can be divided into two groups :

- (a) Those due to anaemia.
- (b) Those relating to pernicious anaemia.

(a) These are : General debility and pallor of skin with their effects of palpitation, dyspnoea, tendency to syncope, and other symptoms of anaemia. There is little emaciation.

(b) In this group, the general symptoms are lassitude ; irregular fever from time to time ; gastro-intestinal attacks with abdominal pain ; diarrhoea may occur ; the tongue is sore due to glossitis ; achlorhydria ; nervous symptoms, due to spinal degeneration, or ataxy and paralysis ; marked tendency to haemorrhage into retina, sometimes into skin and into internal organs ; blood changes, leucopenia (no leucocytosis) and diminution in platelets.

Prognosis :

An untreated case is an unfavourable one. With treatment, the progress can be arrested, but the deficiency may remain a life-long trouble.

Diff. Diagnosis :

Pernicious anaemia has to be differentiated from other anaemias by noting its characteristic blood and bone marrow picture and the result of X-Ray examination. The most characteristic signs of pernicious anaemia is the presence of megalocytes, which are abnormally large red corpuscles.

Treatment :**(A) Dietary :**

The patient should be fed with preparations of red marrow.

(B) Curative :

(1) **Arsenicum.** This is highly spoken of in pernicious anaemia. Its indications are : excessive prostration; considerable oedema violent and irregular palpitation; marked appetite for acids and brandy; extreme anxiety, and rapid emaciation; irritable stomach and great thirst.

(2) **Picric Acid.** For the extreme prostration of pernicious anaemia with a heavy tired feeling all over the body; burning pains along the spine, and aggravation from excitement.

(3) **Phosphorus.** Tuberculous subjects who are rapidly losing energy; puffy eyes.

(4) **Thyroidinum.** In goitrous subjects who have nervous weakness, palpitation and chilliness.

(5) **Trinitrotoluene.** (T.N.T.) Indicated in graver forms of anaemia and jaundice.

DEFICIENCY OF B₁₂ AND FOLIC ACID**(Nutritional Macrocytic Anaemia)****Definition and Etiology :**

The deficiency of either of these factors leads to a megaloblastic anaemia.

Nutritional anaemia represents a condition in which there is deficient absorption of vitamin B_{12} or folic acid or both. This accounts for the deficient formation of blood cells. The subjects may be males, but more often they are females. The deficiency depends mainly upon the dietary habits. In this anaemia, the red bone marrow has characteristic changes like those of pernicious anaemia.

As with any vitamin deficiency, there may be inadequate intake, inadequate absorption, excessive demand, and in the case of folic acid inability to utilise it properly.

(i) **Inadequate intake.** Vitamin B_{12} deficiency due to inadequate intake is rare and only occurs in the rigid vegetarians. This is most likely in India which is largely fond of vegetarianism.

(ii) **Inadequate absorption.** The common form of megaloblastic anaemia in temperate climates is pernicious anaemia. Vitamin B_{12} (extrinsic factor) cannot be absorbed from the ileum unless intrinsic factor produced by the stomach is also present. In pernicious anaemia there is failure to produce the intrinsic factor. Other lesions of the stomach leading to B_{12} deficiency are total gastrectomy and a few other similar causes.

(iii) **Increased demand.** The major demand is in pregnancy. For this reason folic acid is given together with iron in all pregnant women.

Clinical Manifestation :

(1) Both folic acid and B_{12} produce glossitis and a megaloblastic deficiency anaemia with leucopenia and thrombocytopenia. Only B_{12} deficiency causes neurological changes of peripheral neuropathy and degeneration of the spinal cord with pyramidal lesions.

Diagnosis :

(1) Pernicious anaemia generally appears in elderly persons ; while nutritional anaemia may appear at any age. In the former, achlorhydria is constant, and in the latter it is not constant.

(2) Tests have to be carried out.

(i) Serum Folate + B_{12} level (ii) + B_{12} absorption test.

IRON DEFICIENCY ANAEMIA

(Hypochromic Microcytic Anaemia)

Definition :

This is the commonest form of anaemia usually due to chronic blood loss, although inadequate iron intake and malabsorption account for a number of cases.

Causes :

There are several causes of iron deficiency anaemia.

- (1) **Inadequate iron intake**, particularly in infancy and old age.
- (2) Inadequate absorption of iron from the gut which occurs with gastric lesions following gastrectomy.
- (3) Increased demand for iron during menstruation of women and pregnancy.
- (4) Chronic haemorrhage *e.g.* from a carcinoma of stomach, hiatus hernia, peptic ulceration, and haemorrhoids
- (5) **Inadequate iron intake**. This refers to the iron deficiency of infants.
- (6) **Inadequate absorption of iron**. The presence of lesions in small intestines prevent the absorption of iron. Patients with achlorhydria also do not absorb iron.
- (7) **Increased demand for iron**. This is needed during menstruation and pregnancy.
- (8) **Chronic blood loss**. Various diseases of the intestines prevent the absorption of iron, *e.g.* piles or occult blood in stools.

Special Clinical Features :

In addition to symptoms of anaemia, there are special manifestation which suggest the presence of iron deficiency.

- (1) There is a spoon-shaped deformity of the nails indicating the deficiency of iron.
- (2) Glossitis may be present.
- (3) In the middle age there may be dysphagia due to atrophic changes in the post-cricoid region, a pre-malignant condition leading to post-cricoid carcinoma.

(4) The spleen is sometimes palpable but seldom grossly enlarged.

Prognosis :

It is rarely fatal, but in the absence of proper treatment, many patients remain invalid for years.

HYPOPLASTIC ANAEMIA

(Aplastic anaemia)

Definition :

This form of anaemia is due to hypoplasia of the bone marrow, and usually accompanied by failure to produce normal granulocytes and platelets resulting in pancytopenia.

Etiology :

Hypoplasia of the bone-marrow is caused by many factors, which may be classified as follows :

(1) **Congenital red cell aplasia.** This is a rare form possibly due to an abnormality in metabolism. It is noticed about the second or third month of life. Some cases remit at puberty.

(2) **Hereditary hypoplastic anaemia.** This is also a rare form and may be associated with congenital deformities together with dwarfism.

(3) **Chemical agents.** Drugs regularly used cause marrow depression. These include cyto-toxic agents and anti-epileptic drugs.

(4) **Ionising radiation.** This is an obvious cause of marrow hypoplasia and is dose dependent.

(5) **Post-viral.** Hypoplastic anaemia may follow virus infection.

(6) **Pure red cell Aplasia.** This is a rare form and may be associated with a thymoma.

(7) **Lack of erythropoietin.** In chronic renal disease, failure to produce erythropoietin leads to red cell hypoplasia.

(8) **Idiopathic.** Many cases of hypoplastic anaemia occur for no reason.

Symptoms and Signs :

(1) Early insidious symptoms may be fatiguability of the patient, well before the severity of anaemia.

(2) Purpura, bleeding from the nose, and gums may be the first complaint.

(3) The spleen is only rarely palpable, and glands and liver are not enlarged.

(4) The blood picture is characterised by a reduction of all the cells and the absence of immature white cells.

(5) The colour index is above unity and Van den Bergh's test is negative.

(6) Leukaemia.

Diagnosis :

The illness is often confused with pernicious anaemia. The absence of enlargement of lymphatic glands, liver, or spleen should differentiate aplastic anaemia from pernicious anaemia.

Prognosis :

Complete recovery may occur, but probably in not more than 5% cases. Patients with abnormal blood picture are liable to sudden deterioration from infection.

HAEMOLYTIC ANAEMIA

Definition :

This form of anaemia is due to a shortened survival of red blood cells, caused by the premature destruction in the blood or the reticula-endothelial system. There are certain features shared by all forms of haemolytic anaemia.

Clinical Features :

(1) The excessive red cell destruction leads to increased production of pre-hepatic bilirubin, causing now and then, clinical jaundice, but bilirubin does not appear in the urine, unless pigment gall-stones are formed.

(2) Marrow hyperplasia occurs both with an increase and in the premature release of reticulocytes into the peripheral blood.

(3) If there is any increase in plasma haemoglobin, this will combine with an alpha globulin, heptoglobin, which is then removed from the circulation.

(4) The excess of haem in the blood combines with albumin to form methaemalbumin, and so free haemoglobin and mathamoeglobulin may be found in the urine.

Types of Haemolysis (Classified)

(a) Haemolysis due to red cell abnormalities :-

(i) These are due to abnormalities of shape *e.g.* spherocytosis and elliptocytosis.

(ii) Abnormalities due to haemoglobin syhthesis, *thalassaemia*, *sickle-cell anaemia*.

(iii) Due to enzyme defects *e.g.* *glucose-G phosphate* and others.

(iv) Abnormalities acquired *e.g.*, *Paroxysmal Nocturnal haemoglobinuria*.

(b) Haemolysis external to the red cell.

(i) Haemolysis due to mechanical trauma.

(ii) Haemolysis due to drugs and chemicals.

(iii) Haemolysis due to infections.

(iv) Haemolysis due to antibodies.

(v) Haemolysis due to hyper-splenism.

ACHOLURIC JAUNDICE

(Congenital Sypherocytosis)

Definition :

This is a hereditary disease which is characterised by increased weak state of the red-blood cells, a variable degree of jaundice and anaemia, enlargement of spleen, and a strong tendency to the formation of gall-stones.

Etiology :

The disease exists from birth, but the symptoms may not manifest themselves until a much later date, and may remain in abeyance throughout life. The red-blood cells are more spherical than normal, and are rapidly destroyed by the spleen. The spleen usually weighs from one to three pounds and the pulp is congested with red-blood cells.

Symptoms and Signs :

(1) The condition can only be recognised by the examination of blood, and so it may be symptomless.

(2) Most patients have a mild jaundice with a history of recurring attacks of jaundice.

(3) Anaemia is often accompanied with a high temperature, nausea and vomiting.

(4) No haemoglobinuria in acholuric jaundice of a familial type.

(5) Gallstones may develop as a result of bilirubinaemia and consequent biliary colic.

(6) Chronic ulceration of the legs may be the only unexplained symptom.

(7) Splenomegaly of moderate degree.

(8) Faeces are normal in colour and the urine contains no bile.

Diagnosis :

The diagnosis is suggested by the association of splenomegaly with long-standing jaundice, or recurrent attacks of jaundice. Its confirmation depends upon the characteristic blood picture, and increased weakness of the red blood corpuscles. Chronic ulceration of the legs may suggest the cause of this disease. The blood picture distinguishes it from pernicious anaemia, chronic leukaemia, and splenic anaemia.

Prognosis :

This anaemia very rarely proves fatal.

General Treatment :

The patient should avoid undue exertion.

Note. Cooley's anaemia and sickle-cell anaemia are other examples of haemolytic anaemias.

Treatment of Anaemias :

(1) **Aletris.** Chlorosis ; debility of females from protracted illness when they feel tired, fatigued, dull, heavy and confused and the power and energy of mind and body are weakened.

(2) **Calcareae Carb.** This is well-indicated in persons having a psoric, scrofulous, or a tubercular tendency. The symptoms of the drug are : disgust for meat ; craving for sour and indigestible things ; swelling of abdomen ; vertigo and palpitation on going upstairs ; worried state of the patient, constantly imagining calamities.

(3) **Acetic Acid.** The drug will suit anaemic nursing women with waxy skin and thirst.

(4) **Alumina** will suit anaemic cases of children brought up on artificial foods and consequent ill-nourishment.

(5) **Cinchona** is the chief remedy for anaemias due to loss of fluids, or to lactation, haemorrhage, menstrual flow, long-lasting diarrhoea, sexual excesses, and loss of semen. The indications are : loss of sight ; fainting and ringing in ears ; pale, sallow complexion ; sour belching ; poor digestion ; and bloated abdomen ; sensitiveness to draughts of air, and yet the patient wants to be fanned.

(6) **Ferrum Met.** A great remedy for anaemia and will cure selected cases based on the following indications : the patient has the appearance of full bloatedness followed by paleness of the face and puffiness of extremities. The mucous membranes are pale, possibility of an anaemic murmur in the veins of the neck. The patient is easily exhausted ; vomiting of food after a meal may be there. The patient is constantly chilly and has, perhaps, an afternoon or evening fever.

(7) **Ferrum Phos.** Sometimes this drug proves better than *Ferrum*. This may be given along with **Calcareae Phos.**

(8) **Other useful preparations of Ferrum are :**

- (i) *Ferrum Redactum IX*,
- (ii) *Ferrumet Strychnia citrate 3X*,
- (iii) *Ferrum aceticum or Ferrum Protoxalate*.

(9) **Helonias.** An excellent remedy in anaemia and chlorosis, particularly from prolonged haemorrhage in women, weakened by indolence and luxury, or such as are worn out by hard work. Such women are too tired to sleep and strained muscles burn and ache. A characteristic feature is that the patient feels better when her attention is engaged, and consequently she is better, when the doctor comes. The anaemia is associated with disturbances in the urinary and sexual organs.

(10) **Natrum Mur.** The patient eats well, and still there is emaciation and paleness ; throbbing headache, dyspnoea, especially on going upstairs, constipation, and depression, consolation aggravates, much palpitation ; fluttering and intermittent action of the heart ; scanty menses.

(11) **Kali Carb.** In anaemia with weak heart, sweats, back-ache, especially with female complaints.

(12) **Pulsatilla.** The symptoms of this drug resemble closely those of Ferrum. If much iron has been given allopathically, this drug is the remedy to antidote its bad effects. The Pulsatilla patient is chilly and suffers from gastric and menstrual disorders. She feels better in open air and has dizziness on rising. She has absence of thirst and gentle disposition (Cyclamen has dread of fresh air.)

(13) **Secale.** Suits cases of progressive anaemia with pale, bloodless, jaundiced colour.

(14) **Plumbum.** Inveterate cases of chlorosis with obstinate constipation.

(15) **Valeriana.** Anaemia complicated with hysteria and extreme nervousness.

(16) **Sulphur.** Heat on vertex, palms of the hands and soles of the feet, constipation with unsatisfactory stool, late menses of too short duration or too scanty or suppressed leucorrhoea.

(17) **Sepia.** Menses too late and too scanty, or suppressed ; severe headache, bearing down sensation of the genitals, sinking at pit of stomach, leucorrhoea, greenish or yellow ; constipation with ineffectual urging to stool and passing only wind and mucus.

(18) **Calc. Carb.** Anaemia, which dates back from childhood and which is most common among girls, disposed to obesity, catarrh, and diarrhoea with great weakness.

POLYCYTHAEMIA

This is a condition in which there is an excessive production of mature red cells, resulting in absolute increase in the red cell volume so that the haemoglobin concentration and packed cell volume are persistently raised.

Polycythaemia may be primary myeloproliferative disease or secondary to an excessive production erythropoietin (an enzyme in the kidney) or decreased arterial oxygen saturation. We will here consider only *primary polycythaemia*.

PRIMARY POLYCYTHAEMIA

Definition :

This is a primary proliferative disease of the bone marrow involving chiefly the red cell series, but frequently also showing an increased number of circulating granulocytes and platelets together with splenomegaly.

Etiology :

This is unknown. It is a disease of second half of life and occurs in both sexes.

Clinical Manifestations :

(1) The commonest presenting features are vascular.

(2) Increased viscosity of blood may produce headache, lack of concentration, vertigo, disturbance of dysphagia and hemiplegia.

(3) Permanent neurological damage may occur.

(4) The tendency of thrombosis involves both the veins and arteries, the common sites for venous thrombosis being the lower limbs and pelvis, but hepatic veins may be involved.

(5) Arterial thrombi may form in the coronary and in cerebral arteries as well as in the peripheral blood vessels of the limbs.

(6) Patients may also develop a haemorrhagic diathesis, the common site being gastro-intestinal tract.

(7) Plethoric appearance with cyanosis, gout and generalised pruritus and splenomegaly may occur.

Diagnosis :

This is suspected from the clinical signs of plethora and splenomegaly and confirmed by the findings of a raised haemoglobin concentration and PCV. The presence of granulocytosis thrombocytosis with an increased leucocyte alkaline phosphate and splenomegaly will establish the diagnosis.

Complications :

(i) Progressive thrombosis of the portal vein, which may lead to cirrhosis.

(ii) Haemorrhage from piles, from stomach, bowel, or from duodenal ulcer that occurs in 8% of cases.

(iii) Attacks of gout sometimes occur.

(iv) Some times congestive heart failure.

Prognosis :

This is not quite favourable in serious complications. The course may be otherwise quite a prolonged one with occasional remissions.

Treatment :

Phosphorus is the chief remedy.

METHAEMOGLOBINAEMIA

(Enterogenous Cyanosis)

Definition :

This is a cyanosis due to the presence of methaemoglobin or subphaemoglobin in the circulating red cells.

Etiology :

Most cases are due to the administration of drugs, *e.g.* sulpho-nomides, potassium chlorate and nitrites. Some cases may occur due to industrial poisoning through dyes etc. as these increase the rate of oxidation of haemoglobin in red cells. This process is accentuated by constipated patients. This disease is also congenital and familial due to congenital metabolic defects of the red cells.

Clinical Manifestations :

(1) The most striking feature is cyanosis in the absence of an obvious cause.

(2) In chronic cases, the patient may complain of weakness, palpitation, headache, fainting and constipation.

Diagnosis :

This depends on the spectroscopic examination of the blood for methaemoglobin. The brown colour of the blood can often be recognised by the naked eye. The diagnosis is suggested by the presence of cyanosis without obvious heart or lung disease.

Treatment :

It should be based on the two predisposing causes,

(i) *due to congenital reasons* : the remedies are

(1) Rhus tox.

(2) Hydrocyanic acid.

(ii) *due to drugs* : the remedies are

(1) Carbo Veg.

(2) Arsenicum Album

(3) Ant. Ars.

(4) Lycopodium.

(5) Lachesis.

(6) Opium.

V—WHITE BLOOD CELLS

Types of White Cells :

There are two main types of white cells :

(1) Lymphocytes or agranulocytes or leucocytes in small and large varieties.

(2) Polymorphonuclears which have a nucleus with two, three, or four lobes. These differ from lymphocytes in that their protoplasm is speckled with fine particles or granules. They are, therefore, known as *Granulocytes*. These granulocytes are of three types :

(a) **Neutrophils.**

(b) **Eosinophils.**

(c) **Basophils.**

The neutrophils are by far the most numerous granulocytes, constituting 70% of all white cells. The eosinophils and basophils are few in number, the former constituting not more than 3 to 4% of white cells and the latter 05%.

Function of White Cells :

(i) The neutrophils move from place to place with perfect freedom, and make their way through any tissue. They choose to defend the body from the attacks of germs and materials, injurious to the other cells. During such an attack, the number of cells may be 20,000 or 30,000, instead of the normal 7,000 to 8,000. An increase of leucocytes (white cells) above the normal is termed *Leucocytosis*.

(ii) All varieties of granulocytes are produced in the red bone marrow only.

(iii) The lymphocytes are formed in the lymphatic tissues—the lymphnodes, spleen etc.

BLOOD PLATELETS

These are small colourless cells or cell-like structures about half in size of a red corpuscle. They number about 250,000 per cu. mm. of blood. They are important elements in the blood clotting process. It is generally believed that the platelets are formed in the red bone marrow.

MALIGNANT DISEASE OF THE BONE-MARROW

(Myelo-Proliferative Diseases)

The following analysis is now medically accepted :

(a) Acute :

- (1) Acute Leukaemia.
- (2) Acute erythraemia.

(b) Chronic :

- (1) Chronic granulocytic leukaemia.
- (2) Polycythemia Vera. (already described)
- (3) Essential thrombo-cythaemia.

ACUTE LEUKAEMIA

(Acute Leucosis)

Definition :

This is an acute proliferative disease of the bone-marrow characterised by infiltration with the most primitive form of white cell precursor, the blast cell. Three different forms may be recognised depending upon the morphology of the blast cell—lymphoblastic, myeloblastic and monoblastic. Sometimes it is difficult to be sure which variety is present and then the term *stem-cell leukaemia* is used.

Etiology :

It is now clearly established that in many animals, leukaemia can be transmitted by a virus and that irradiation may also cause leukaemia, although this may work by activating a latent leukaemia virus.

In man, there is a definite correlation between irradiation and acute leukaemia and chronic granulocytic leukaemia. Evidence from Japan following the atomic bomb explosion and from patients with ankylosing spondylitis treated with radio-therapy has shown that the incidence of these forms of leukaemia is greatly increased following irradiation. There has also been some evidence that irradiation of foetus *in utero* produces an increased incidence of acute

leukaemia in children, and unnecessary irradiation should be avoided in pregnant women.

Definite proof of virus causing leukaemia in man is lacking, although viral particles have been seen in leukaemia cells.

Exposure to chemicals, in particular benzene, may cause leukaemia.

Lymphoblastic leukaemia is much common in children and adolescence than in adult life, though it can occur at any age, the male-female ratio being 3 : 2.

Clinical Manifestations

(1) Usually the presenting features are due to a failure of the bone-marrow to produce the normal cellular elements of the blood resulting in anaemia, a haemorrhagic state due to thrombocytopenia and infections due to neutrophil leukopenia.

(2) The patient becomes pale, ill, febrile, and sometimes infected with pharyngitis or pneumonia with purpura or overt haemorrhage from the gums or lower in the gastro-intestinal tract.

(3) The spleen is usually but not invariably palpable.

(4) There may be a general or marked local lymphadenopathy.

(5) During the course of the disease infiltration may occur in many organs, particularly in nervous system, causing meningeal leukaemia with the symptoms and signs of meningitis.

(6) Other sites include skin, testes, ovaries, kidneys, liver, the gut, the stomach, ileum and colon.

(7) Overt bone lesions may cause pain.

(8) Infiltration of the gums is characteristic of monoblastic leukaemia.

(9) Enlargement of the salivary glands may occur.

(10) Occasionally large tumours develop near the orbit and elsewhere which may be green in colour.

Diagnosis :

The combination of anaemia, haemorrhage infection with or without splenomegaly and lymphadenopathy suggests the diagnosis of leukaemia which is confirmed by examination of blood and bone-marrow. The total white count varies from 50,000 to severe leucopenia (less than 1,000 white cells per mm) in leukaemic form.

ACUTE ERYTHRAEMIA

This is an acute myeloproliferative disease characterised by infiltration of the bone-marrow and often the blood with primitive normoblasts. The disease clinically presents in the same way as acute myeloblastic leukaemia and terminates with myeloblastic infiltration of the marrow.

Prognosis is extremely dim, as remissions are extremely rare.

GRANULOCYCYTIC LEUKAEMIA**(Chronic myeloid Leukaemia)****Definition :**

This is a malignant proliferation of the bone-marrow involving principally all the developing cells of the granulocyte series.

Etiology :

(1) As with acute leukaemia, the only proven etiological factor is irradiation.

(2) The disease occurs in both sexes in approximately even numbers, is rare in children and the very old, 70% of the patients developing the disease between the ages of 30 and 60.

Clinical Manifestation :

(1) The most presenting symptoms are general malaise, lassitude and weakness, abdominal swelling, or pain due to splenomegaly with or without splenic infarction, weight loss, signs of anaemia or purpura.

(2) Occasionally the disease is discovered by chance when blood count is done for some other disease.

(3) The enlarged spleen occasionally becomes a massive spleen and there are signs of anaemia. |

(4) Haemorrhagic state may be present.

(5) Lymphadenopathy is rare and is usually a bad prognostic sign.

(6) Purpura, bone lesions, and skin infiltrations are uncommon but well determined features.

Diagnosis :

This is best ascertained by the presence of basophil leucocytes, and of immature cells in blood and the great splenic enlargement. Look for the combination of splenomegaly, anaemia and greatly raised white blood count frequently above 10,000.

Treatment :

Curative.

(1) **Arsenic Iodide** to be given after meals. (Try **Arsenic**, if this does not work.)

(2) **Ceanothus**. When there is pain or discomfort in the region of spleen.

(3) **Picric Acid**. Where there is sexual excitement.

(4) **Natrum Mur**. When the complexion is pale and earthy, and extremities are cold.

(5) **Natrum Sulph**, and **Thuja** are recommended by Dr. Grauvogl

(6) **Ferrum Picric**. Pseudo-leukaemia, which is also called Hodgkin's disease. See Anaemia also.

AGRANULOCYTOSIS : (Malignant Neutropenia)

Agranulocytosis is an acute serious disease, in which the white blood cell count drops suddenly to low levels and leucopenia becomes prominent as a result of almost complete absence of granulocytes from the red blood cell, caused by the toxic reaction to sulphur and anti-thyroid drugs, gold salts, and other synthetic preparations, or to excessive waste of the bone-marrow.

Etiology :

Agranulocytosis is caused by the sensitization to or poisoning by drugs, or other chemical substances, to which the patient has been exposed. It takes time for sensitization to occur, and so the disease develops after repeated medication by these drugs.

Some of the causes of leucopenia may be of toxic origin and may not be the direct consequence of agranulocytosis ; patients, with pyogenic bacteria focus, or a virus pneumonia, may develop leucopenia by destroying some of the leucocytes and reducing their number in this way.

Symptoms :

- (1) General weakness and a feeling of illness.
- (2) Catarrh of the upper respiratory tract.
- (3) High fever, sore-throat and rigors.

Signs :

(1) Necrotic ulceration of mouth and pharynx, involving tonsils and gums.

(2) Cervical glands enlarged; and, to some extent, the liver and spleen also.

(3) The white blood count is below 1000 cu mm. and granulocytes 5% or less. Toxaemia and septicaemia in severe cases.

Diagnosis :

This depends upon the examination of blood.

The condition may be confused with *diphtheria* and *Vincent's angina*. If necrotic ulcers are present in the mouth or throat, the examination of blood and bone-marrow should be carried out to eliminate leukaemia. An enquiry should also be made about the use of drugs during treatment.

Prognosis :

Increasing drowsiness, high septic conditions and persistent high rise of temperature are unfavourable signs. With adequate treatment, the cases might take a favourable turn.

Treatment :

See pyaemia, septicaemia, leukaemia and anaemia for suitable remedies which are noted below.

(i) Due to Pyaemia and infections :

- (1) Arsenic
- (2) Anthracinum
- (3) Pyrogenium
- (4) Echinacea
- (5) Lachesis
- (6) Sepsin
- (7) Rhus Tox

(ii) Due to Drugs :

- (1) Nux Vom.
- (2) Carbo Veg.
- (3) Nat Mur.
- (4) China.
- (5) Sulphur
- (6) Arsenicum
- (7) Aurum.

(iii) Other Causes

- (1) Phos
- (2) Ferrum picric.
- (3) China Sulph.
- (4) Mercurius.

VI—HAEMORRHAGIC DISEASES**(The Purpuras)****Definition**

The term includes all those conditions which are characterised by multiple spontaneous capillary haemorrhages, chiefly in the skin and mucous membranes.

Etiology :

It is believed that the disorder may be due to impaired function of the capillary walls, or to defective quality, or quantity of platelets (clot cells). It can also be caused by many other conditions, infective, toxic, and allergic. It may be a mere symptom,

(1) in the course of certain infective diseases, such as, septicaemia, small-pox, measles, typhus, cerebro-spinal fever, etc.,

(2) in haemorrhages, characterised by the diminution of platelets, either by their less formation in the bone-marrow, or by their inorganic destruction in the spleen,

(3) in allergic conditions in patients with drug sensitivity, or other allergic disorders,

(4) in diseases due to vitamin C deficiency,

(5) in advanced leukaemia, or pernicious anaemia, kala-azar, Hodgkin's disease and cancer, or

(6) due to prolonged exposure to X-rays and radio-active substances. The classification of purpura is made under the following groups :

- (i) **Infective**, as associated with specific fevers.
- (ii) **Toxic**, as with a septic focus, or internal toxins, or drugs.
- (iii) **Blood diseases**, as of leukaemia, pernicious anaemia.
- (iv) Purpura due to nervous diseases of hysteria, tabes, etc.

Symptoms and Signs :

(1) There are red spots on the skin level in different parts of the body without any irritation.

(2) Haemorrhage from nose, lungs, stomach, intestine, urinary or genital passages takes place.

(3) An acute case may start suddenly or after an infection ; a chronic case starts in childhood.

(4) The attacks are followed by anaemia due to iron deficiency.

(5) Blood platelets are below 40,000 per cu. mm.

(6) Spleen is occasionally enlarged.

Note :

The diagnosis of purpura is easy, but the difficulty lies in ascertaining its cause.

Prognosis :

Most of the acute cases among children may recover spontaneously. Chronic cases among adults and others are less favourable.

Treatment :

General : Transfusion of fresh, compatible blood is useful to tide over the crisis.

Curative : See 'ANAEMIA' also.

(1) **Hamamelis.** Where blood vessels are at fault, passive haemorrhages, palpitation, paleness of skin and membranes and slight wounds bleed easily.

(2) **Arsenicum.** Febrile cases with low type fever.

(3) **Phos. acid.** With great nervous depression.

(4) **Crotalus.** Due to disorganisation of blood.

(5) **Naja.** Haemorrhage with palpitation, dyspnoea and other heart signs, particularly valvular troubles.

TOXIC PURPURA

The signs are :

(1) red spots raised above the level of the skin often surrounded by a reddened base. This may be mild with a few spots here and there, or severe, affecting the joints (knee and ankle), which are swollen and painful.

(2) The temperature is moderately raised.

(3) In other cases, there is not only a disturbance in the skin, but in the alimentary canal also, such as colic pain, vomiting, bloody diarrhoea. The spleen is frequently enlarged.

(4) Urine contains albumin and red blood cells.

Treatment :

General : Vitamin C may be given in mild cases. In other cases, the following remedies may be selected according to indications :

Curative :

(1) **Aconite**. Rheumatic purpura with fever, pains in limbs and stiffness of joints.

(2) **Kali Iodide**. Sensitiveness of surfaces ; in rheumatic pains and disorders ; emaciation and debility.

(3) **Mercurius Sol.** Restlessness, general soreness, pains greater at night.

(4) **Bovista or colocynth**. Purpura with colic and vomiting etc.

(5) **Bryonia, Rhus Tox and Rhus Ven.** Purpura rheumatic.

(6) **Chloralum**. Red blotches like measles; surface of body stone-cold; muscular prostration.

(7) **Alnus**. Haemorrhagic purpura with gastric juice deficiency.

GENETIC HAEMORRHAGIC DISORDERS

(Haemophilia or Deficiency of Factor VIII)

Definition :

Haemophilia is a genetic disorder of blood coagulation, characterised by a life-long tendency to excessive haemorrhage and a greatly prolonged coagulation time.

Etiology :

The inherited disease is due to a defective blood coagulation, resulting from deficiencies of certain elements, involved in the coagulation or normal blood, such as prothrombin, plasma, and platelet factors. The disease is due to the deficiency of anti-haemophilic globulin (factor VIII) in the plasma which leads to the deficient formation of thromboplastin with consequent undue prolongation of clotting time. The clotting time in haemophillia is either infinitely prolonged, or altogether absent.

Symptoms and Signs :

(1) The bleeding tendency is not apparent at birth, but it is usually noticed within the first three years.

(2) Haemorrhage occurs from the nose, in the mouth, from the urinary tract, from injuries to skin, into muscles or joints, or after eruption or extraction of teeth, etc. Injury, however slight, is necessary for the irritation of bleeding.

(3) Bleeding is not so profuse as persistent. The total loss, however, may be serious.

(4) At some stage, the bleeding occurs into joints excluding knees, ankles, and elbows. When this happens, there is pain and swelling of the joints with fever.

(5) Repeated haemorrhages may lead to the formation of the clot and to ankylosis with marked deformity and crippling.

Diagnosis :

Family history of habitual haemorrhages should suggest haemophilia or christmas disease. But sometimes the coagulation time is normal ; the thromboplastin general tissue should decide the issue.

Treatment :

See anaemia, haematuria and other haemorrhages. The following medicines are suggested :

- (i) Adrenalin 3X
- (ii) Crotalus
- (iii) Hamamelis
- (iv) Lachesis
- (v) Natrum Silicum
- (vi) Phosphorus
- (vii) Ferrum Phos.

ABNORMALITIS OF CLOTTING (BLOOD COAGULATION) INCLUDING THROMBOPLASTIN AND PROTHROMBIN DEFICIENCIES

The conversion of prothrombin into thrombin is a complicated reaction which proceeds very slowly in normal blood. In the presence of substances liberated from the tissues, clotting or coagulation is accelerated. Thromboplastin which activates the conversion of prothrombin into thrombin, is a product of substances liberated from injured tissues and platelets together with antihaemophilic globulin factors, the two most important of which are called factors V and VII with another which is called *Christmas factor*. These factors are present in normal blood. Clotting of blood is the end result of a chain of reactions, in which prothrombin is converted to thrombin in the presence of calcium, and subsequently thrombin converts fibrinogen to fibrin. Fibrin combined with cellular elements constitutes a clot. Vitamins require the presence of bile salts for their absorption from the gut. Prothrombin is deficient in severe liver diseases, and in cases where there is a lack of vitamin K, as in haemorrhagic disease of the newborn.

Deficient production of thromboplastic (thrombokinese) may be due to the absence of any of the factors, mentioned above under clotting of blood and will cause haemorrhagic disease, of which *Haemophilia* is the best known.

CHAPTER—VIII

CUTANECUS SYSTEM (SKIN)

CUTANECUS SYSTEM (SKIN)

I—Symptoms & Signs of Skin Diseases & Their Treatment

(i) Symptoms :

The skin diseases have the following symptoms :

- (1) Itching (Pruritus).
- (2) Numbness.
- (3) Formication.
- (4) Tingling.
- (5) Pricking.
- (6) Burning pain.
- (7) Paraesthesia or Anaesthesia.
- (8) Hyperaesthesia.

ITCHING

Causes :

Itching is the desire to scratch. This is a normal phenomenon and can be relieved by a rub or scratch. Pathological itching called “pruritus” however, occurs when the desire to scratch is morbidly persistent and is disturbing the well-being of the individual by day, and sleep by night. It may be localised, or generalised over the skin. It is caused in the first place by such diseases as urticaria, eczema, scabies, or results from the bites of fleas and insects, mosquitoes, lice or bugs. Other causes are constitutional diseases, such as, diabetes, leukaemia, jaundice or uraemia. It also arises in hysteria or depression, and by the contact of rough garments and dyes. Irritating discharges from the nose, ear and vagina also bring about itching.

Treatment :

(1) **Radium Bromide 30** (once a week), when there is itching at night. (In bed at night, followed by scratching and burning —*Sulphur*).

(2) **Alumina**. Itching of the whole body, worse after getting warm in bed at night.

(3) **Ambra Grisea**. Itching of anus and vulva (violent itching).

(4) **Ignatia** from worms.

(5) **Carbolic Acid**. Itching of genitals (Itching of Vulva—*Caladium*).

(6) **Fluoric Acid**. Itching of orifices.

(7) **Rumex**. Itching, worse from exposure to cold air.

(8) **Croton Tig**. Itching better by gentle rubbing.

(9) **Dolichos**. Itching without eruptions on the skin.

FORMICATION TINGLING, NUMBNESS AND PRICKING

Causes :

Formication is a feeling of ants' creeping, tingling, a sharp thrilling pain and numbness and lack of sensation. These sensations may be due to cold, bites and stings, and as a result of some disease of blood and circulation.

Treatment :

(1) **Aconite**. Numbness, tingling, and formication chiefly down the back.

(2) **Cocaine**. Numbness and formication in hands and fore-arms.

(3) **Mezereum**. When legs and feet go to sleep.

(4) **Morphinum**. Numbness with staggering gait.

(5) **Phos Acid**. When there is formication in various parts of the whole body.

(6) **Sulphuric Acid**. Formication, tingling, numbness from external injuries. In fact, all bad effects from injuries may be met by this remedy.

(7) **Arsenicum**. Numbness and a creeping sensation in hands and feet.

(8) **Secale**. Numbness of fingers and pricking in their tips.

(9) **Conium**. Numb feeling over the whole body.

SENSIBILITY OF SKIN

Definition :

Excessive sensitiveness of a part of the skin is known as *Hyperaesthesia*, while diminution of sensibility is called *Paraesthesia* or *Anaesthesia*. These are observed in various diseases.

Treatment :

(a) For diminished sensibility (anaesthesia), the remedies are :

- (1) Acetic acid
- (2) Aconite
- (3) Cannabis indica
- (4) Ignatia
- (5) Nux Vom
- (6) Plumbum
- (7) Zincum.

(b) For increased sensibility (Hyperaesthesia), the remedies are :

- (1) Dulcamara
- (2) Hepar sulph.
- (3) Kali Carb.
- (4) Sulphur.

(ii) Signs :

Physical Examination of Skin

By Inspection. While examining the skin for its colour or texture, one should look for eruptions, erythemas or hyperaemia of the skin, cyanosis, primary and secondary lesions, such as, macules, papules, vesicles, pustules, weals, scars, ulceration, oedema, pigmentation, atrophy of hair (alopecia) and skin, etc.

By Palpation. This will not only confirm the inspection, but will enable the observer to feel for heat, tenderness, smoothness, and whether the eruptions disappear on pressure.

By Percussion and Auscultation. These are unnecessary.

Primary Lesions

(a) **Macules.** A macule is an un-elevated discoloured spot due to increase or decrease of melanin, blood or blood pigments or due

to some extraneous matter. The lesion is one cm. in diameter or less, larger lesions being described as patches. Macules may be erythematous or purpuric. Some of the examples of these macules are :

- (1) Various erythemas *e.g.*, chilblains, pityriasis rosea etc.
- (2) Measles, rashes, etc.
- (3) Naevi.

(b) **Papules.** A papule is a solid, skin-coloured or pink elevation up to 1 cm. in diameter. Large elevations are spoken of as plaques. The examples are :

- (1) Acne
- (2) Lichen
- (3) Wen or Sebaceous cysts
- (4) Warts etc.

(c) **Vesicles.** A Vesicle is a circumscribed collection of translucent fluid (a blister-within the epidermis, often surrounding a papule. Its diameter is upto 0.5 cm. above which the expression bulla is used. The examples are :

- (1) Prickly heat (Miliaria)
- (2) Pemphigus
- (3) Insect bites.

(d) **Pustules.** A pustule is a circumscribed collection of opaque fluid (pus) of similar size to a vesicle. Many pustules are follicular. The examples are :

- (1) Furuncles or boils
- (2) Whitlow or felon
- (3) Styes
- (4) Carbuncles.

(e) **Weals.** A weal is a pale or pink oedematous papule or plaque with a surrounding red flare. The best example is that of urticaria.

Secondary Lesions

These lesions include deeper excoriations and are produced either mechanically or are the results of changes which take place

in the course of growth or decline of the primary lesions. The commonest forms are :

- (1) **Fissures** (See Chapter IV)
- (2) **Desquamation** or scaling off of the skin (treatment follows).
- (3) **Pigmentation** (See later pages).
- (4) **Ulceration** (treatment follows).
- (5) **Scar formation** or **cicatrices** (treatment follows).

II—Treatment of Primary Lesions :

(a) MACULES

Vasomotor Disorders

ERYTHEMAS

Definition :

This condition is characterised by the redness of the skin, which under the pressure of the finger disappears. There are several varieties of erythemas, some of which are :

- (1) **Erythema Solare** or **sunburn**.
- (2) **Erythema Pernio** (**chilblain**).
- (3) **Pityriasis Rosea**.
- (4) and a few others.

Causes :

Erythemas are caused by exposure to heat, the rays of the sun, and by irritating substances.

(i) **Erythema Solare** (**sunburn**) appears first as a reddish patch and may form blebs. It heals by exfoliation and leaves variable pigmentation.

Treatment :

The following remedies are applicable :

- (1) Bufo.
- (2) Cantharis (Blebs with burning)
- (3) Calc Carb.
- (4) Robinia.
- (5) Veratrum Album.

(ii) **Erythema Pernio (Chilblain)**. This is a condition of blue cold skin with swelling, itching and burning as a reaction to exposure to cold.

Causes :

It is due to exposure to cold, particularly when the general health is impaired. Other factors are lack of exercise, insufficient clothing, etc.

Treatment :

- (1) **Agaricus**. More painful when cold.
- (2) **Pulsatilla**. In girls.
- (3) **Rhus Tox**. When the inflamed portion is dusky-red and much burning.
- (4) **Ver. Viride**. When it is dark purplish.
- (5) **Cal. Carb**. To eradicate the tendency in children.

(iii) **Pityriasis Rosea**. This is first a round or oval round erythematous patch in the trunk or arms. After about three weeks, patches of many forms and shapes arise on the skin with scales attached to the circumference. They appear in several rounds, affecting several parts of the body and finally fade away with branny scaling.

Treatment :

- (1) **Arsenicum**. With anxiety, restlessness and thirst.
- (2) **Colchicum**. Blotchy papular rash on face, pink spots on back, chest and abdomen.
- (3) **Kali Ars**. For obstinate cases, when the patient is restless, nervous and anaemic with intolerable itching, worse when undressing.
- (4) **Natrum Ars**. Squamous eruptions, scales, thin, white, leaving reddened skin, itching stops when scales remain, but worse when warm from exercise.
- (5) **Radium Bromide 30**. When there is fiery redness, burning and pain.

Naevi (Moles)

Definition and Etiology :

Naevus is a circumscribed lesion of the skin arising from pigment-producing cells (melanoma), or due to developmental abnormality of blood vessels. (angioma, a tumour formed of blood vessels.)

Treatment :

Thuja. Both internally and externally, apply on spongy tumours and naevi.

Fluoric Acid. Especially indicated in deep sores, like bed-sores, naevi and other ulcers.

Acetic Acid (1X). Both internally and externally.

(b) PAPULES ACNEIFORM DERMATOSES Acne Vulgaris and Rosacea

Definition :

Acne Vulgaris is a skin condition, common in adolescence, in which comedoes have a black colour because of oxidation. This is associated with a papular eruption, which may become pustular, on the face, shoulders, back, neck and chest. **Acne Rosacea** is a pronounced erythema of the brow, cheeks, and nose, resulting from chronic dilatation of subcutaneous capillary vessels.

Causes :

(1) Acne Vulgaris is generally seen in persons at puberty who take too little exercise and indulge in eating excess of fat and carbohydrates. It is generally seen that when androgens are relatively more than oestrogens in the blood, they stimulate sebum glands proliferation. This results in acne.

(2) Besides, a septic focus may affect the glands to produce acne.

(3) Bromides, iodides or workers with tar and mineral oils can produce acne.

Treatment :

(1) **Hydrocotyle.** Great dryness and desquamation of epidermis.

- (2) **Nux. Vom.** From liquor drinks.
- (3) **Agaricus.** With blueness and tendency to chilblains.
- (4) **Ars. Iodide or Sulph Iodide.** Severe obstinate cases.
- (5) **Bellis. P.** From cold drinks.
- (6) **Carbo. An.** For recent cases, but if they are full of blood, give *Bell.* and if they are pale, give *Pulsatilla*.
- (7) **Carbo Veg.** From gastric derangements.
- (8) **Kali Brom.** For eruptions on face, chest and shoulders (Acne Vulgaris).
- (9) Antim Sulph 6×(Acne with pus).
- (10) A mixture of Silicia 200+Carbo Veg 200 for acne.

Lichenoid Dermatoses

LICHEN

Definition :

Lichen are aggregations of papular skin lesions. These are of various types.

(1) **Lichen Nitidus** which are characterised by minute, shiny, flat-topped pink papules of pin-head size.

(2) **Lichen Planus.** These are aggregates of small papules, polygonal in shape, flat-topped and of violaceous hue.

(3) **Lichen Simplex.** This is a psychosomatic condition which produces areas of irritating, leathery, shiny papules.

Lichen Planus are present on the wrist and fore-arm. They may be on the membrane of the mouth, and on the penis or vulva. They may also appear on the palms and soles, but never on the face. They are often very itchy, and have no other symptoms generally.

Treatment :

- (1) **Sulphur.** Lichen simplex.
- (2) **Apis.** If papules are of urticaria type.
- (3) **Arsenicum.** Lichen planus, chronic cases with burning and itching.
- (4) **Ars. Iodide.** Lichen of a scrofulous type.

(5) **Rumex.** Red pimples with itching coming on when undressing.

(6) **Juglans Regia.** Pimples on face and neck, pricking and itching.

HYPERTROPHY OF SKIN

Warts (*Veruccae*) and *collosites*

Definition and Etiology :

A wart is a circumscribed, hard, papular appearance on the skin, present at birth or which develops at any time up to adolescence. It is brown in colour, and covered by a luxuriant hair growth. *Callosities*, are formed in such places as are exposed to external pressure, especially on the hands and feet. As such, corns are callosities, in consequence of the pressure of tight shoes. A corn is a localised reactive hyperplasia, the result of intermittent pressure and friction. *Veruccae* are of several forms :

(1) **Veruccae Plana Juvenilis** are a common multiple, flat tiny warts often seen on the children's hands and knees.

(2) **V. Plantaris** is flat wart on the sole of the foot, which is highly contagious.

(3) **V. Seborrhoeic** is a brown greasy wart seen in seborrhoeic subjects, commonly on chest or back.

(4) **V. Vulgaris** is a common wart of the hands, of brown colour and rough pitted surface.

Treatment :

(1) **Thuja IX.** Warts in crops, on back of hands and head.

(2) **Nit. Acid.** Large jagged, easily bleeding, cauliflower-like, on upper lip, itching and pricking.

(3) **Calc. Carb.** Numerous, small, horny, stinging, itching and inflamed.

(4) **Nat. Carb.** Ulcerative, sensitive, to touch.

(5) **Ferrum Picrate.** Multiple, pedunculated lupoid warts.

(6) **Sulphur.** Hard, painful, throbbing warts.

(7) **Causticum.** A crop of small, soft (at base) warts, but horny on surface, on arms, hands, eyelids and face.

(8) **Kali Mur.** Warts on hands ; locally moisten the warts with its paste.

(9) **Antim Tart.** Warts at the back of glans penis.

(10) **Nat Mur.** Warts on the palm.

(11) **Sepia.** Large, hard, black warts on the margin of prepuce or on the body.

collosites [CORN]

(1) **Ferram Picrate.** Corns with yellowish discolouration.

(2) **Antim. Crud.** Feet covered with large horny places. Inflamed corns.

(3) **Ranunculus Bulb.** Sensitive corns, blister-like eruptions in palms.

(4) **Bufo, Calc. Carb., Cepa** : are remedies of blistered soles.

WENS (SEBACEOUS CYSTS)

Definition :

Wen is an encysted tumour of varying size from that of a small pea to the size of a walnut and even a small orange. It may occur on any part of the body and usually consists of sebaceous (oily) matter. This fatty substance is a fluid-like serum, at other times it is soft and white or of a pappy consistency, or it is yellowish resembling beeswax. Sometimes it contains epidermal scales and hairs ; sometimes the contents are exceedingly faetid.

These cysts move and feel elastic under the pressure of the finger.

Treatment :

Baryta Carb. Wens on the scalp, extremely sensitive and scurfy (coarse) having dried scales.

(2) **Phytolacca.** Squamous and syphilitic eruptions with itches that are dry and scaly. It is a useful remedy in the early stages of all skin eruptions.

(3) **Silicea.** Hard, indurated tumours after impure vaccination.

(4) **Sulphur.** For dry, scaly, unhealthy excoriations, especially in folds.

(5) **Conium.** Recurrent styes.

(6) **Hep. Sulph.** Suppurating wens.

(7) **Benzoic Acid.** Wens in gouty subjects with strong smelling urine.

(8) **Other Remedies :**

(i) Graphites

(ii) Kali Br.

(iii) Kali Iodide

(iv) Nitric Acid

(v) Thuja.

(c) VESICLES MILIARIA (Prickly Heat)

Definition :

Prickly heat is a condition in which vesicular or papulo-vesicular erythematous eruptions occur in hot and humid climate and are very distressing to the white-skinned people, residing in tropical countries and which affect waist-line and the chest.

Causes :

These are caused by

(1) drinking liquor,

(2) using powders and soaps containing dehydrating and degreasing substances,

(3) excess sweating of fat people. The sweat ducts are blocked and subsequently rupture to form red, itchy papules. If these are infected in the course of itching by staphylococci, boils are formed, called *heat boils*.

Treatment, General :

Have a *pot. permanganate* bath, followed by dusting of powder.

Curative :

(1) **Aconite.** Rash-like measles with formication and itching.

(2) **Bryonia.** Rash with greasy type of skin. (See lichen also.)

PEMPHIGUS (Large Blisters) (Bullous eruptions)

Definition and Etiology :

This is a disease, characterised by appearance of **crops of Bullae** in different parts of the skin and the mucous membranes on a reddened base. There are two usual forms :

(1) **Pemphigus of the newborn**, which is a dangerous form of pustular eruptions (Impetigo) occurring as an epidemic in the hospital.

(2) **Pemphigus Vulgaris**, a bullous disease of the middle-age and later, of an unknown etiology. In this, the oedema of the skin results in blister-formation with resulting ruptures and re-infection, so that large areas develop.

Treatment :

(1) **Rhus Tox** : Acute cases.

(2) **Arsenic** : Chronic cases.

(3) **Mer. Cor.** : Syphilitic cases.

(4) **Cantharis**. Vesicular eruptions with burning and itching (sunburn).

(5) **Caltha Palustris**. Pemphigus, when bullae are surrounded by a ring, and there is much itching.

(6) **Mancinella**. Large blisters as from scalds in pemphigus.

(7) **Ranunculus Sceleratus**. Vesicular eruptions with a tendency to form large eruptions. Acrid exudation, making the parts sore.

INSECT BITES

These bites are common during the rainy season and autumn at harvest time. The bites form blisters which the victim attempts to crush ; thereby a burning sensation and a stinging pain is caused on the exposed part of the body.

Treatment :

(1) **Ledum**. Give this remedy every 10 minutes (give **Grindelia** every 10 minutes, if **Ledum** fails).

(2) **Urticaria Uren.** For bee stings.

(3) **Apis.** When there is collapse in bee or wasp stinging, give this remedy every 5 minutes.

(4) **Lachesis.** For a tarentula bite (spanish fly) every 10 minutes.

(d) PUSTULES

FURUNCLES or BOILS

Definition and Etiology :

A furuncle or boil is an acute inflammatory condition (staphylococcal infection) surrounding a hair follicle. It is caused by the bacteria *Staphylococcus Aureus* usually attended by suppuration and has one opening for drainage in contrast to a carbuncle. Note that an **abscess** is a localised collection of pus formed as a result of pyogenic organism.

Treatment :

(1) **Belladonna.** When there is much redness in boils which generally recur in the spring.

(2) **Arnica.** For a crop of boils one after another with soreness, which eventually suppurate and then depress at the top.

(3) **Calc. Picrate** is a valuable remedy in all boils.

(4) **Phytolacca** is said to be specific for boils.

(5) **Hepar Sulph.** will hasten and mature suppuration, when pus is not decomposed.

(6) **Silicea** will follow Hepar and open up the boil.

(7) **Calc. Sulph.** Should follow Silicea.

(8) **Sulphur** prevents the tendency to boil habit.

(9) **Berberis Vulgaris.** Also hastens suppuration and prevents recurrence. (Gunpowder 2X is another preventive remedy.)

(10) **Anthracinum** is a remedy for a succession of boils, (chronic cases).

(11) **Lappa Arctium and Echinacea** are good remedies to break up the boil habit.

WHITLOWS (felons)

Definition :

Whitlow is the painful, inflammatory swelling of the end of a finger or thumb, having a tendency to suppurate, and in debilitated constitutions, to recur.

Varieties :

(1) **The cutaneous whitlow** is the inflammation of the skin with burning pain and effusion of a serous or bloody fluid.

(2) **The sub-cutaneous whitlow.** This is attended with great pain and throbbing and suppuration under the root of the nail, which often comes off.

(3) *The tendinous whitlow or thecal abscess.* It is the inflammation of the membrane covering the tendon of the finger. When the whitlow is malignant, pressing on to the periosteum, it is sometimes called *Felon*.

Causes :

(1) Mechanical injuries, *e.g.* cutting the nail to the quick, a bruise, or a burn.

(2) The introduction of poisonous or acrid matter into scratches on the finger.

(3) Constitutional disorders.

Symptoms and Signs :

(1) Heat, pain, throbbing and redness at the end of the finger.

(2) Later, there is swelling, tension, pain extending to the arm.

(3) Then the surface assumes at first livid and, then, a pale cloudy appearance.

(4) If suppuration occurs, a dirty-looking fluid is discharged.

(5) Subsequently the nail falls off.

Treatment :

(1) **Silicea :**

(i) As soon as the first conditions are noticed, the finger should be plunged into water as hot as can be borne, in which common salt

has been dissolved, for two hours or longer. The finger should be held in a raised position. Along with this, a dose of *Silicea* 12x should be taken every three hours. This may prevent the formation.

(ii) If it is too late for these means, poultices of warm bread and milk should be applied and *silicea* continued every 4 hours in alternation with *Aconite*, when there is fever, or *Belladonna*, when there is inflammation.

(2) **Mercurius**. When given at the commencement of the disease, often prevents suppuration. Subsequently, if followed by Sulphur, the cure is complete.

(3) **Hepar Sulph**. When pain becomes violent, throbbing, and swelling increases. (Give *Causticum*, if Hepar does not succeed).

(4) **Silicea**. After *Hepar* has somewhat improved it, but when the pain is still intense, and the swelling continues unabated.

(5) **Lachesis**. Where the affected part is of deep red or bluish colour.

(6) **Arsenicum**. When the sore becomes angry-looking or black with burning pain.

(7) **Sulphur 30** and **Silicea 30**. To be administered alternately at intervals of six or eight days, as this would remove the tendency of the disease.

Note :

It may, sometimes, be necessary to incise the part to get a quick relief.

STYES (Hordeolum)

Definition :

A Stye is also a furuncle or an abscess on the eyelid or the follicle of an eyelash.

Etiology and Treatment :

It is claimed that it is the outcome of fatty and faulty foods.

(1) **Pulsatilla**. Generally cures all styes on the eyelids in the initial stage.

(2) **Hepar Sulph.** If the styte is painful and inflamed, it should be followed by *silicea* in due course.

(3) **Staphysagria.** If styes recur or leave hard lumps behind, or do not open but become indurated and hard with biting and burning in the corners (if some hardness still persists, give *Calc. Carb.* or *Sepia*).

(4) **Thuja.** For obstinate indurations, if the corners are hot and dry or there is great flow of tears, when in the open air.

(5) **Silicea and Stramonium.** To be used for deep-seated inflammation and severe pain. *Silicea 12X* will abort felons, styes and even boils and *Hepar* will do it in higher potency.

(6) **Calcarea Sulph.** Follows *Silicea*.

CARBUNCLES

Definition and Etiology :

This is an acute inflammation of the skin involving several hair follicles and surrounding sub-cutaneous tissue, forming an extensive slough with several discharging sinuses. It is usually caused by the bacteria *Staphylococcus Aureus*.

Features :

- (1) Severe pain of a burning character.
- (2) The painful swelling gradually becomes purplish and hard.
- (3) Numerous holes are observed in the raised spot within 5 or 6 days.
- (4) Very little pus is discharged from these holes.
- (5) Slough is, then, detached and thrown out.
- (6) There is considerable fever.
- (7) If the blood absorbs the pus gradually, cerebral complications might arise.

Treatment :

- (1) **Rhus Tox** is the remedy at the outset, when pains are intense and the affected parts are dark-red.

(2) **Arsenic Alb.** For burning pains (as if on fire) in the affected part. These pains are aggravated after midnight and are accompanied by great irritability of mind and body. Warm applications relieve the burning pains. (If *Arsenicum* fails, *Anthracinum* should be given).

(3) **Myristica 3X.** To break open the carbuncle to hasten its suppuration.

(4) **Lachesis** is useful when pus forms very slowly and the parts are purplish with signs of blood poisoning, and the small boils are surrounding the main sore (When slough has formed and is very offensive **Lachesis** or **Carbo Veg.** is required).

(5) **Tarentula Cubensis.** For sloughing with great prostration and black core centre.

(6) **Echinacea.** For the septic state (blood poisoning) with prostration and pain. Apply it also externally.

(7) **Silicea.** For carbuncles on back between the shoulders. It promotes healthy granulations and clears the decayed masses.

(8) **Nitric Acid and Phytolacca.** To be given to eradicate the tendency.

III—Secondary Lesions

(EXFOLIATIVE DERMATITIS)

Exfoliation is the scaling off of tissues in layers. This may occur in *psoriasis* (silvery scales heaped upon papules), *pityriasis*; (round or oval pinkish macules or papules with brawny scaling). Sometimes it may be a persistent redness of the skin with a varying amount of exfoliation as a result of overtreatment of eczematous dermatitis.

THE INFECTIVE SEBORRHOEIC DERMATITIS

Etiology :

The term applies to all patients whose skin is susceptible to bacterial and *Candida albicans* infections, chemical and physical injury and emotional stress. The "seborrhoeic" person is sometimes

obese and indulges in fats and carbohydrates to excess. His diet is often deficient in proteins and vitamins. His emotionalism may aggravate the condition. The sites affected are scalp, brows, eyelids, the nose, ears, beard, arms, thighs and legs and the trunk with simple scurf (**dandruff**) of greasy scaling on a reddened itchy skin.

Treatment :

(1) **Amm. Mur.** Blisters on various parts of the body. Intense burning, better with cold applications. Itching worse in the evening.

(2) **Arsenicum.** Especially applicable to dry, rough, scaly skin.

(3) **Bryonia.** Seborrhoea, hair very greasy.

(4) **Iodium.** Hot, dry, withered and yellow skin and glands enlarged.

(5) **Nat Mur.** Greasy, oily skin especially on hairy parts. Dry eruptions, especially on margins of hairy scalp and bends of joints.

(6) **Psorinum.** Herpetic eruptions, especially on scalp and bends of joints with itching, worse from warmth of bed.

(7) **Raphanus.** Seborrhoea with greasy skin.

(8) **Selenium.** Seborrhoea and pimples with an oily skin and alopecia.

ALOPECIA

Definition :

Alopecia is sometimes partial, being limited to local circumscribed areas or more often total loss of hair without visible scarring. The term *alopecia areata* is applied to one or more circular or oval smooth patches, while *alopecia totalis* (baldness) to total involvement of the scalp. Alopecia areata is sometimes limited to the beard. Sometimes the nails are involved with pitting.

Causes :

Alopecia commonly means the falling of hair. It is caused

(1) by chronic headache

(2) after a severe illness

(3) by chronic eruptions

(4) by syphilis

(5) by lack of secretion from the sebaceous glands. The atrophy of hair follicles causes *baldness*.

Treatment :

(1) **Kali Carb.** Alopecia with great dryness of the head.

(2) **Hepar Sulph, Phosphorus, Sepia and Silicea.** Alopecia after chronic headache.

(3) **Nitric Acid** after nervous fevers.

(4) **Phosphoric Acid** after great anxiety and grief.

(5) **Fluoric Acid.** From syphilitic causes.

(6) **Arnica.** Baldness.

(7) **Bryonia.** For greasy hairs.

Fissures and Rhagades, Cracks and Excoriations

These vary in size and thickness, and are often the aftereffects of hurts, small-pox, boils and burns. They are generally due to vitamin A deficiency. Excoriation is a superficial injury to skin or mucus membrane from scarring or rubbing.

Treatment : (Rhagades)

(1) **Natrum Carb.** Hands and feet, cracked and sore.

(2) **Petroleum.** If Nak. Carb. does not suffice.

(3) **Arnica.** For cutaneous abrasions (*Conium* for contusions, *Hypericum* and *Calendula* may also be noted).

PIGMENTATION

Definition :

The colour of skin depends on the

(1) melanin, (a black pigment in epidermis),

(2) haemoglobin,

(3) Oxy-haemoglobin (oxygenated haemoglobin) in the blood vessels and

(4) Carotene (a yellow pigment) in the horny layer and in the sub-cutaneous fat.

Causes :

(i) **Brick-red pigmentation** may occur from extravasated blood, abnormal haemoglobins, metals, drugs, chemicals, tar, mercury and haemolytic anaemia.

(2) **Yellow colouration** can be caused by

(i) excessive intake of food with high carotene content, such as, in carrots, tomatoes, egg yolk, etc.

(ii) jaundice

(iii) and chemical stains, such as, picric acid.

(3) **Blue grey brown discolouration** is caused by silver, gold and bismuth.

(4) Increased pigmentation occurs from endocrine causes, as in pregnancy. But widespread pigmentation is sometimes a feature of chronic infections as in tuberculosis, malaria, kala-azar and bacterial endocarditis. Several drugs like arsenic cause increased pigmentation.

(5) Excessive pigmentation occurs mostly in middle-aged women in biliary cirrhosis.

(6) Certain skin diseases produce pigmented lesions, e.g., lupus, lichen planus, lichen simplex, erythroderma and urticaria.

CHLOASMA

Chloasma Uterinum is a yellowish brown pigmentation (Liver Spots) which is found on the forehead and cheeks of the women during pregnancy, or when suffering from uterine and ovarian disturbances.

Treatment :

(1) **Argentum Nit.** Painful affection of the left ovary. Uterine haemorrhage two weeks after menses.

(2) **Caulophyllum.** Moth spots on forehead. Discolouration of skin in women with menstrual and uterine disorders.

(3) **Lycopodium.** Brown spots, worse on left side of the face and nose.

(4) **Natrum Hyposulph.** For liver-spots. Use both internally and locally.

(5) **Sepia**. Useful in Chloasma.

(6) **Carbo Animalis**. Copper-coloured eruptions and spots.

(7) **Corallium**. Coral-coloured and then dark-red spots, changing to copper-coloured spots.

FRECKLES (*Lentigo*)

Freckles are brownish yellow spots found on the face of the adults, often exposed to sun, especially in young women suffering from uterine disorder.

Treatment :

(1) **Nitric Acid**. Dark brown spots on chest.

(2) **Kali Carb**. Dark brown spots on face.

(3) **Sepia**. On cheeks.

(4) **Ferrum Magneticum**. On hands.

(5) **Lycopodium**. On left side of the face.

(6) **Sulphur**. Also in freckles.

CICATRICES (*Scar-formations*)

Cicatrix is a scar formed from connective tissue. *Keloid* is an overgrowth of scar tissue, which may produce a contraction deformity. These scars are left after various papular and vesicular and pustular eruptions, *e.g.*, in small-pox, in wounds, in pustules, in burns, etc.

Treatment :

(1) **Causticum**. When cicatrices freshen up and old injuries reopen.

(2) **Fluoric acid**. For itching of cicatrices.

(3) **Graphites**. Used in early stage of keloid and fibroma.

(4) **Iodine**. Acts prominently on connective tissue.

(5) **Thiosine 2X** is a resolvent for dissolving scar tissue, tumours, enlarged glands, lupus, strictures, and adhesions.

LEUCODERMA (Vitiligo)

Definition :

Leucoderma is a defect of pigmentation in which DOPA positive melanocytes are absent, but in DOPA negative feeble melanocytes are present. Vitiligo may either be inherited or acquired.

Causes :

The hereditary type is sometimes associated with endocrine disorders, particularly hypothyroidism, Addison's disease, or pernicious anaemia. Alopecia areata may co-exist. The acquired leucoderma occurs after exposure to the sun at sites of eczema or psoriasis or as pityriasis on the faces of blonde individuals, particularly children.

The disease should not be confused with *tuberculous* leprosy in which there are nutritional changes.

Treatment :

Curative. The following remedies are suggested :

- (1) **Arsenic Sulphuratum Flavum.**
- (2) **Natrum Mur.**
- (3) **Nitric Acid.**
- (4) **Sumbul.**
- (5) **Zinc Phos.**

ULCERATION

Ulcers. Ulcer is an open sore in a body surface. These may be associated with burns, bed-sores, gastric complaints, tumours, eruptive fever and other diseases ; the formation of an ulcer on an inflamed surface is termed ulceration.

Treatment :

- (1) **Silicea or Calc Fluor.** Perforation or fistulous ulcers.
- (2) **Arnica or Conium** Traumatic ulcers.
- (3) **Nitric Acid.** Ulcers that bleed when touched. They have irregular edges.
- (4) **Hamamelis.** Varicose ulcers.

(5) **Carduus Mar.** Large varicose ulcers with enlargement of spleen and liver.

(6) **Arsenicum.** Painful burning ulcers.

(7) **Phosphorus.** Punched-out ulcers that bleed easily or are surrounded by small ulcers.

(8) **Mercurius Sol.** Weeping ulcers.

(9) **Paeonia.** Painful and foetid ulcers.

(10) **Carbo Veg.** When there is much prostration with coldness and vital depression.

(11) **Kali Bich.** Deep ulcers.

IV—Parasitic Infestations

SCABIES

Definition :

Scabies is an acarine parasitic infestation of the various layers of the epithelium of the skin caused by *Sarcoptes (Acarus) scabies*.

Etiology :

The adult male is about 0.4 mm. long, just visible to the naked eye, oval in shape, with two anterior pairs of limbs which bear sucker and two posterior pairs which bear trailing bristles. The gravid female burrows in the horny layer, where she deposits up to 30 eggs and then dies. The larvae, hatching from the eggs, have only two hind limbs, until by repeated shedding, they develop to males and females. The larvae and males live in the orifices of hair follicles, the male dying after impregnation of the females. The complete cycle takes 10 days. Infestation is by intimate skin contact; the infestation is either a familial and household one or a complaint of bed fellows. It may rarely spread by more casual contacts, as in the handling of an infested patient by a nurse. In the first attack, the itching begins about two weeks after infestation.

Clinical Features :

(1) Scabies may present, pruritus, widespread eczema or infected dermatitis, urticaria, impetigo or furunculosis; itching may be intolerable or inconspicuous.

(2) Secondary infection may produce a picture resembling infective dermatitis.

(3) **Scabies** affect thin skin areas below the collar line. Thus the anterior axillary folds, the medial sides of the elbows, the ulnar sides of the wrists, and hands and the clefts of the fingers, are commonly affected on the upper limbs.

(4) On the trunk the sides most affected are the female breasts, the abdomen, male external genitalia and the buttocks and on the lower limbs, the thighs, ankles and feet.

(5) In infants, palms and soles are characteristically affected and in females, lesions may occur in the face.

(6) The burrow is a linear, slightly sinuous elevation in the skin, at the end of which a darker speck marks the site of the parasite.

(7) Skin-coloured or red follicular papules are also observed.

(8) Microscopic examination shows one or more adult parasites, larvae, unhatched eggs or egg shell fragments.

Diff. Diagnosis :

(1) The diagnosis is made from pediculosis and from other causes of itching, eruptions associated with urticaria, eczema, furunculosis and impetigo. The sites involved and presence of burrows makes the diagnosis of scabies ; prurigo is distinguished from scabies by its predominance on the extensor surface and out side of the limbs.

(2) Pediculosis is distinguished by the distribution or character of the rash. But in both cases a careful search for the acarus and the burrows by a lens should always be made.

Treatment :

(1) **Arsenicum.** Inveterate cases ; eruptions on the bends of knees ; pustular eruptions ; burning and itching : better from external warmth.

(2) **Bovista.** Baker's and Grocer's itch, as eruptions on the back of hands.

(3) **Carbo Veg.** Eruptions dry and fine ; almost on the whole body worse on the extremities ; itching worse after undressing ; dyspeptic symptoms, belching of wind and passing of flatus ; abuse of mercurial ointments.

(4) **Causticum** : Abuse of mercury and sulphur ; yellowish colour of the face ; warts on the face ; involuntary discharge of urine when coughing, sneezing or waking, sensitiveness to cold air.

(5) **Hepar Sulph.** Fat, pustulous and crusty itch, also after abuse of mercurial ointments ;

(6) **Mercurius Sol.** Itches especially in the bends of the elbow.

(7) **Psorinum.** Inveterate cases, with symptoms of tuberculosis ; repeated outbreaks of single pustules, after the main eruptions have all gone.

(8) **Sulphur.** It is the main remedy, voluptuous tingling and itching with burning and soreness after scratching.

(9) **Sulphuric Acid.** Indicated when itchiness of the skin and single pustules appear every spring after a not perfectly cured itch. If all the above remedies fail (in 1X potency), Dr. Hering's recommendations be followed as laid down below :—

Begin with one dose of *Mercurius 30*, and give after a few days *Sulphur 30* in alternation for sometime. If improvement takes place, stop further dosing. If there is, however, no relief, try the following remedies :—

Carbo Veg. Every other day, if the vesicles are small and dry, or give *Hepar sulph 30* morning and evening. But if the pustules are large, give *Mercurius*, then Sulphur and afterwards *Causticum* night and morning in water.

Lachesis. If the pustules are large and become yellow and blue, repeat it whenever the pains get worse.

Note. On suppression or disappearance of the pustules, take Sulphur or Arsenicum 200 (one dose) fortnightly, until the rash returns.

V—Virus Infections

HERPES ZOSTER (Shingles)

Definition :

This is an acute infection of the posterior root ganglion by a neurotropic virus, leading to severe pain in the distribution of the cor-

responding posterior root, and to the appearance of a crop of vesicles in the cutaneous distribution of the root.

Etiology :

The disease is seen at all ages. In elderly patients it is very often more serious as well as more painful than in the young. The older the subject, the more persisting and severe are the painful sequelae. It may arise without discoverable cause and with a febrile reaction and considerable malaise. It often happens a few days after exposure to chicken-pox. There is little doubt that both are due to the same virus (varicella), Zoster probably being a manifestation of infection in the majority of subjects. In some instances it follows radiotherapy, the eruption appearing in the segment irradiated.

Symptoms and Signs :

- (1) There may be an onset with fever for 2 to 4 days.
- (2) Herpetic eruptions appear at the painful place on the third or fourth day of illness.
- (3) Rash as patchy erythema appears first, upon which small vesicles filled with clear fluid are formed.
- (4) Within 5 or 6 days vesicles dry up and shrink up and form a scab, which leaves a scar on the skin.
- (5) These scars may be anaesthetic to touch, pin-prick and to temperature sense.
- (6) The pain during the evolution of the rash may be intense. It is of a burning and itching quality and may persist in frail and weak persons for years.
- (7) Corneal vesicles may form and burst, causing ulcers which may spread and leave scars.
- (8) Anaesthesia of the fifth nerve and pain may be present.
- (9) Instead of anaesthesia there may be hyper-aesthesia and a spontaneous pain may dominate in the life of the patient.
- (10) The pain is aggravated by fatigue, worry and physical debility, and often induces a neurotic reaction or a state of depression to the patient.

(11) Localised paralysis may accompany zoster and so ptosis and squint might appear as a result of the palsy of the third nerve.

(12) The bulging of the abdomen might indicate an abdominal tumour.

(13) Zoster might affect the nervous system with paraplegic diasthaesia and prostration.

Note : There are several varieties of herpes. Of these Herpes zoster is the most painful. The others are :—

(1) **Herpes Gestationis.** This is a rare condition, occurring once in about 5000 pregnancies.

(2) **Herpes Simplex.** This is caused by the virus, *herpes virus hominis*. The affection is generalised and affects many organs, particularly the buccal area. It usually occurs in childhood. The attacks are mild with fever.

Treatment :

Curative :

(1) **Arsenicum.** Chronic cases, where there are burning ulcers with offensive discharges ; papules with burning, itching, and swelling ; thickened skin.

(2) **Cantharis.** Both internally and externally. The blisters are large with smarting and burning pain.

(3) **Mezereum.** Herpes zoster with neuralgic pains along the sensory nerve of old or debilitated persons.

(4) **Prunus Spinosa.** Herpes zoster when the pain is intolerable.

(5) **Ranunculus Bulbosus.** Vesicular eruptions, along the course of the nerves, filled with serum, burning greatly. Large blisters form on the surface.

(6) **Rhus Tox.** Useful in right-sided zoster with extensive vesication and, perhaps, accompanied with rheumatic pains. The skin is covered with numerous vesicles ; there is great itching and tingling ; the skin is often swollen and oedematous and the vesicles have a red base all round ; symptoms, worse at night in damp

weather and in winter. Rapid vesication and angry-looking skin are characteristics.

(7) **Variolinum.** Herpes zoster hot, dry skin and pustular eruptions.

VI – Constitutional Skin Diseases

THE SYPHILIDES

Definition :

The syphilitic eruptions appear on the skin after the primary sore has existed for about 3 to 4 weeks, following the *Treponema pallidum* infection. This is known as *Secondary Syphilis*. These eruptions are characterised by macules, roseola or faint-pink spots, widely distributed over the skin. These eruptions at the secondary stage are called "*Syphilides*".

The tertiary or the third stage of syphilis sets in after about three years of the secondary stage when *Gummata* in the form of tumours on the periosteum, enveloping the bones, appear. The disease goes deeper, and affects the internal tissues and organs. If gummata do not appear, the nervous system or the heart is affected and neuro-syphilis supervenes, resulting in partial insanity, locomotor ataxia, and cerebro-vascular disasters, or the destruction of aortic valve.

Symptoms and Signs :

(1) Commonly a generalised pinkish rash, the macular or roseolar, appears 6-8 weeks after the primary sore. It usually appears on the chest, back and abdomen as rose-pink circular spots, varying in size from 5 to 10 mm. which with age may deepen in colour to a dull red. They may be difficult to see unless the patient is stripped and viewed in good light. The eruption may also involve the upper part of the limbs but usually misses the face. It fades in a few weeks, leaving little or no staining.

After the fading of roseola, a patchy loss of pigment may occur especially in the neck. The pigmented areas are circular. The condition is known as "*Syphilitic leucoderma*" of the neck. The commonest are dome-shaped, dull-red papules over the trunk, limbs and face about the size of pea. Among the papules, there are also dull-red macules. These are called *squamous syphilides*. When the

whole papule breaks down, a pustular syphilide results. Ultimately after several changes, it takes a greenish or blackish condition which is called *Rupia*. The small follicular syphilide usually appears. These are found in small clusters of minute dusky red papules on the trunk, particularly the back. The lichenoid syphilide occurs as a later manifestation.

Treatment :

See chapter V under Secondary and Tertiary stages of syphilis. Kali Iodide is the chief remedy.

LEPROSY **(Hansen's disease)**

Definition :

Leprosy is a progressive, chronic mycobacterial disease of low infectivity, characterised by the tumorous-like growths formed on granulation tissue in the nerves, or on the skin, or the membrane. It may be associated with changes in the bones and the internal organs, especially in the liver and the spleen. The disease has a long incubation period and a chronic course with the development of lesions in the skin and peripheral nerves.

Etiology :

M. Laprae is an acid-fast bacillus morphologically indistinguishable from M. Tuberculosis. It cannot be grown *in vitro* but can be maintained in the foot pad of mice or the thymectomised mouse. Infection probably occurs through the skin and is transmitted via lesions in the skin or mucous membranes. The infection seems to be most acquired frequently in childhood but transmission to adults occurs. There is no congenital transmission. Little is known of the early states of transmission. The ultimate development of the disease depends on the response of the tissues of the infected person.

Types of the disease :

There are two extreme forms of the disease :

- (1) **Lepromatous**
- (2) the **Tuberculoid** with every variety of intermediate development.

Lepromatous leprosy :

This form develops with little resistance to the organisms, which are able to multiply and disseminate freely in the tissues. The characteristic skin lesion is the "leproma". There is little neurological damage in this variety.

Tuberculous leprosy :

This leprosy occurs in patients with pronounced tissue reaction to the infection. The skin lesions are clearly demarcated and the peripheral nerves are involved. The organism is distributed scantily and the lepromin reaction is positive. The lesions are divided into *Major* or *Minor* tuberculoids which eventually become localised with raised edges and pebbled surface.

There are two other types of leprous lesions :

(1) Dimorphous or intermediate which is unstable both clinically and pathologically and which may be absent or numerous and lepromin reaction positive or negative.

(2) Indeterminate which may remain static or progress into any of the three types. This early lesion shows scattered non-specific, cellular infiltration which may involve nerve fibres. The lepromin test may be weakly positive.

Signs and Symptoms :

There is a long incubation period, usually of many years. The onset is nearly always gradual but may be acute with attacks of fever and pain in the peripheral nerves and the appearance of evanescent skin eruptions.

Leprosy tends to develop into one of the two extreme forms but there may many intermediate forms. In both types, in majority of cases, the first sign of infection is the appearance of a skin lesion.

Tuberculoid leprosy :

(1) In some cases well-defined lesions appear and after a few weeks spontaneously disappear, in most cases the initial lesions persist and other lesions develop later.

(2) The skin lesions may become major or minor tuberculoids.

(3) They occur anywhere in the body and are sharply defined, infiltrated and raised above the surrounding skin.

(4) The skin is dry, may be hairless, scaly, pebbled and frequently depigmented. It may be erythematous.

(5) Small nerves are thickened and may be palpable near the lesions; larger nerves, too, are palpable and thickened.

(6) Signs of local neuritis may develop.

(7) Destruction of fibres in a nerve trunk leads to sensory and motor changes in the relevant areas.

(8) Wrist drop commonly develops.

(9) Corresponding lesions appear in the legs.

(10) The skin over the damaged area becomes cold, shiny and inelastic and sweating stops.

(11) The muscles become fibrotic and contract, bones become rarefied, decalcified and absorbed and extreme deformity may finally develop.

(12) Perforating ulcers result at points of pressure which are often deep and secondarily infected.

(13) Chronic sinuses form and the underlying bone is often involved.

(14) The disease leads to facial palsy on the involvement of the 7th nerve.

(15) Involvement of the nerve for eyes leads to loss of sensation.

(16) The cornea may become damaged and lead to blindness.

(17) The tuberculoid tumours in nerves and trunks may caseate and form cold abscesses.

Lepromatous leprosy :

(1) The first sign is the appearance of an indeterminate vague macule in the skin. The affected area is flushed and slightly shiny and is not usually anaesthetic.

(2) The skin of the face and the lobes of ears are often affected early by macular lesions and diffuse infiltrations.

(3) The skin becomes thickened, corrugated and oedematous.

(4) Hair is lost from the eyebrows and face, but not usually from the scalp. Nodular lesions are common. These tumours are painless, intracutaneous or sub-cutaneous occurring commonly on the ears, the face and the extremities.

(5) Mucous membranes may be involved and may ulcerate and discharge organisms.

(6) The nasal and pharyngeal mucosa are affected, and deformity may result.

(7) The organisms may invade the eyes, causing lesions with painful iritis which leads to blindness.

Dimorphous (intermediate) leprosy :

(1) The early lesions are slow growing, indeterminate, partly anaesthetic macules and sometimes with satellite lesions.

(2) Later lesions resemble those of tuberculoid or lepromatous leprosy or both.

(3) Annular patches are common with peripheral raised hypopigmented erythematous surroundings, over which there is some sensory loss.

(4) Peripheral nerves are involved early and severely, and clinical signs of nerve damage may be present before corresponding skin lesions appear.

Indeterminate lesions :

(1) These are hypopigmented macules, which are usually flat, diffuse, with indefinite boundaries and not anaesthetic.

(2) Sweating function and hair growth are maintained.

There are some reaction states of the disease also, owing to vigorous dosing of allopathic drugs, which hinder progress of recovery and normalcy.

Diagnosis :

The certain diagnosis of Leprosy depends on the demonstration of *M. Leprae* in the lesions. The organisms are easily found in lepromatous leprosy, but may be difficult to discover in other forms of the disease.

Tuberculoid and lepromatous lesions can be distinguished readily by the histological pattern, but the intermediate stages of dimorphous lesions may be very difficult to define.

Prognosis :

Non-Cutaneous cases are more favourable than the cutaneous ones. By itself, leprosy is not a fatal disease ; but intercurrent diseases may bring about a speedy end.

Treatment :

General : (1) Improvement in general health by physical exercise and adequate diet.

(2) Treatment of intercurrent diseases, if any.

(3) Nutritious food.

Curative :

(1) **Arsenicum Iodide**. Pricking sensations ; dirty-looking tubercles ; dropping off of fingers and toes, enlarged glands.

(2) **Anacardium**. Numbness, feeling of pains and needles in the parts which are cold, patches of raised hardened skin.

(3) **Aurum**. Offensive discharge from the nose ; melancholy ; suicidal tendency.

(4) **Calotropis**. Tubercular leprosy, extreme debility.

(5) **Bixa Orellana**. Recommended for leprosy, eczema and elephantiasis.

(6) **Elaeis**. Recommended for leprosy and elephantiasis where the skin is thickened and hardened along with itching.

(7) **Graphites**. Cracks, discharging sticky fluid.

Note : In the treatment of this disease, deep acting remedies, *Bacillinum 200*, and *Vaccinium 200* should be given once or twice a week for seven weeks. Among other remedies that are needed are :

(1) Thyrodinum

(2) Hoang-nan

(3) Hydrocotyle (dryness and discolouring in the skin)

(4) Hura

(5) Crotalus

(6) Pyrara

(7) Piper Methysticum (deformity of joints).

VII—ALLERGIC SKIN DISEASES

ALLERGY

Definition :

Allergy or a hypersensitivity disorder is a kind of susceptibility of certain tissue cells, containing a specific substance produced in the blood (antibody) as a reaction to a foreign body introduced in the blood (antigen) by injection, inhalation, ingestion, or on external contact. This allergy is manifested as asthma, digestive disorder, hay fever, urticaria, oedema, or eczema and similar complaints. These manifestations of allergic reactions result from the previous combination of an antigen with an antibody which has been formed as a result of exposure to that allergen.

When epidermis tissues are the reacting agents, the manifestation is the inflammation of the skin and the skin eruptions as in urticaria, dermatitis, oedema, prurigo, eczema, etc.

Etiology :

The agents (allergens) which cause allergy are numerous. Constitution, otherwise healthy, acquires a disposition to be brought into a more or less morbid state by certain things which seem to produce no impressions or changes on many other individuals. Some persons develop symptoms mentioned below and fall into a morbid state by partaking of certain foods, fruits, carrots, fish, drugs, opium, quinine, raw cucumbers, strawberries, pine-apple, cane-sugar, parsley, eggs, rag-weed and vegetables, or by coming in bodily contact with Rhus Tox creeper, certain dyes, drugs and other chemicals, or by stings of bees, wasps, certain proteins, other substances by inhalation, the pollen of certain plants, spores of some fungi, even the scents of certain flowers and the dandruff of animals.

Treatment : (a) Allergy in general :

(a) For quinine or aspirin : Ipecac ; Iodine ; Morphine.

(b) **Quininism** : allergy exhibited by deafness and other symptoms : *Chininum Sulph.* (high).

(c) Asthma due to protein substance in eggs : *repeated doses of egg white.*

(d) Allergy of hay-fever due to rag weed—*ambrosia*.

(e) Rhus poisoning allergy—*Rhus Tox*.

(f) Allergy from berries (in the form of rashes on skin) : *Fragaria*.

(g) Bee-stinging or Apis poisoning : *APIS* (Minimum dosing is necessary).

(h) Whenever the pupil of the eye is dilated during allergy, give *Belladonna*.

(i) For allergy, due to a patient made sick by eating cucumber, give *Cucumis* (High).

(j) Allergy from cane-sugar : *Saccharum officinalis*.

(k) Parsley allergy : *Petroselinum* 30.

Note : To meet all cases of allergy, the principle is to dose the patient with minute doses of the same agent (Allergen) that has caused this morbid state or feeling. In other words, the food or the drug imparting allergy has to be homoeopathically prepared and administered.

URTICARIA (Nettle-rash)

Definition :

Urticaria is a transient redness and swelling of the skin, causing weals in the dermis or large hypodermal swellings.

Etiology :

It is caused as a rule by dilatation and increased permeability of the capillaries and small arterioles.

Urticaria may be due to external or internal causes. The *external causes* may be bite of insects, bugs, mosquitoes, stings of nettles, stinging hairs on leaves, or jelly-fish or infestations with scabies. In some cases, friction causes wealing. In others heat, excitement or exertion cause urtication. Urticaria from cold or light are rare. The *internal causes* may be

(1) due to nervous and emotional causes, such as, meeting a stranger or before addressing a meeting or a state of resentment, (But this is very rare),

(2) due to allergy, *i.e.* an inborn sensitiveness, perhaps to protein,

(3) or in association with hay-fever, asthma or eczema, the commonest foods causing urticaria being eggs, shell-fish, pork, acid fruits or wines,

(4) gastro-intestinal disturbances, due to intestinal parasites, and foci of infection,

(5) allergy to certain drugs.

Clinical Picture :

Clinically urticaria occurs in two forms :

(1) Acute or sub-acute single attacks.

(2) Chronic or recurrent attacks.

Acute Form :

This form presents itchy, pink papules and weals—elevated pink areas with blanched centres.

(1) The lesions appear with itching.

(2) Non itchy hypodermal skin-coloured or pink swellings, and urticaria from nettle stings—both may appear on the body, including eyes and mouth also, occasionally.

(3) The lesions may recur at intervals for a few hours or days and then disappear.

(4) Anxiety and depression may result from disturbance of sleep due to itching.

(5) Sometimes a gastrointestinal disturbance precedes the eruption or foods, such as, shell-fish, strawberries or mushrooms. Other suspect foods include fish, meat, chocolate, nuts and bananas. Urticaria with hay-fever may be caused by nettle stings or insect bites or drugs like insulin.

Chronic Form :

(1) This has itchy papules and weals and subcutaneous swelling which usually occur more in the evening.

(2) Foods and drugs are occasionally implicated (aspirin and penicillin may aggravate or activate urticaria).

(3) Rarely viral infections, malignant foci, reticulosis or collagen disease are responsible.

(4) Suppressions of emotions may cause or aggravate urticaria and fatigue seems to be the immediate precipitant.

Diagnosis :

The recognition of urticaria is usually easy. The history of transient swellings, perhaps with itching, can only mean urticaria.

Giant urticaria is to be differentiated from erysipelas and eczema by the absence of fever and a dusky, brawny swelling, which are found in erysipelas, and by the absence of vesicles and the peeling off which occur in eczema.

Treatment :

General : Diet :

(1) Milk diet is necessary.

(2) Diet containing low sodium but more potassium is useful, viz., avoid under-ground vegetables and meat diet.

Curative :

(1) **Pulsatilla**. Nettle-rash (hives) of gastric or uterine origin or with diarrhoea and chilliness or hives after eating pork, fruit or cakes.

(2) **Belladonna**. Hives with profuse menses.

(3) **Antim Crud**. Hives of gastric origin.

(4) **Dulcamara**. When hives are suppressed with catarrhal symptoms appearing, or chronic cases, worse at the beginning of winter, itching when undressing or an exposure to cold air.

(5) **Rhus Tox**. Hives with rheumatism, worse in cold air.

(6) **Bovista**. Hives with diarrhoea.

(7) **Calc Carb**. Chronic urticaria, worse from drinking milk.

(8) **Terebinthina**. Hives from shell fish.

(9) **Kali Bromatum**. Hives or acne with nervous symptoms.

(10) **Chloratum**. A very useful remedy for hives, when larger blotches appear on the skin suddenly as a result of a chill.

- (11) **Apis.** Urticaria with cold or fever and terrible itching.
- (12) **Sulphur.** Itching over the whole body worse from warmth of bed ; chronic cases.
- (13) **Radium.** Itching all over the body. The skin burns like fire.
- (14) **Urticaria Uren.** Consequences of suppressed nettle rash, e.g. rheumatism ; itching blotches, burning heat with formication, itching and great urination.
- (15) **Astacus.** Chronic cases with irritation at night ; when urticaria is associated with liver disease.
- (16) **Nat. Mur.** Obstinate cases with constipation and earthy complexion.
- (17) **Arsenicum.** Urticaria in weak patients having red tongue, thirst and much burning.
- (18) **Hydrastis.** Eruptions like small-pox.

ECZEMA

(Eczematous Dermatitis)

Definition :

The term "eczema" implies a "boiling over" of the skin and its use should be confined to spontaneous eruptions, characterised by reddened skin, erythema which changes into numerous little vesicles or papules with or without serous exudation. Those oozing out a serum are called "weeping eczemas", which in the process of healing become scaly.

Varieties of Eczema :

(a) **Nummular eczema.** It is an outbreak of papulovesicles, often confined to the extensor surfaces of the limbs, particularly the forearms and legs, but sometimes becoming generalised.

(b) **Infectious eczematous dermatitis** is a disorder closely allied to the discharge from it which produces mixed eczematous and infectious reaction wherever it touches.

(c) **Autolytic eczema.** These arise from faulty treatment of ulcers or eczema on the legs, by the use of sulphur drugs and mercurials on abrasions and burns.

(d) **Endogenous eczema.** It is generally the result of infection, drugs, food or metabolic disorder.

(e) **Infantile eczema.** The term covers infective eczemas of children. There is greasy scaling of the scalp and sometimes of the face, chest and flexures. The child is often overweight. Excess of fat or carbohydrate in the diet is often an important factor. Excess of cereals may also cause it.

Etiology :

Eczema is a type of sensitivity which is caused by :

(1) Fungus infection or an infection with staphylococcus aureus and streptococcus.

(2) It may be a manifestation of eczematous dermatitis, exogenous or endogenous.

(3) Or it may be of a psychogenic origin, an hysterical or mechanical phenomenon.

(4) Sometimes a defective venous return of blood from the legs leads to a gradual deterioration of the viability of the skin of the lower parts of the calves and ankles, resulting in eczema.

(5) Or it may be a hereditary susceptibility.

The allergic forms may be of two types :

(i) The atopic type.

(ii) The contact type. These are caused by :

(1) **Specific contact sensitivity** : (delayed type.) The skin of certain individuals may become sensitized, following contact with chemical substances, such as, formaline, nickel, chromates, turpentine, paraffin, petrol dye-stuffs, plant resins, drugs (penicillin etc.) This type of sensitivity can be demonstrated by "*Patch Test*" with the suspected substances,

(2) **Atopic sensitivity (Immediate Type).** The term "atopy" denotes peculiar liability to develop sensitivity of various

kinds, which often run in the family with clinical manifestations of atopic eczema, asthma etc. The common allergens are various foods, ingested drugs, and chemicals, and occasionally animal danders, certain dusts, and pollens. It can be demonstrated in some cases by eliciting immediate skin reactions in 20 minutes by antigens prepared from suspected substances (*Wheal and Flare reactions*). In others, other provocative tests are needed to pin-point the offending allergen by feeding the patient under observation with a very small quantity of suspected food or drug.

(3) **Sensitivity to infecting organisms (delayed type)**
Eczema may complicate parasitic (scabies), fungal, and bacterial infections.

(4) **Sensitivity to drugs and chemicals taken internally (delayed type)** *e.g.* mercury, gold, arsenic sulphur drugs, etc.

Signs :

(1) Papulo-vesicular eruptions appear with or without exudation.

(2) Sometimes various localities only are involved, *e.g.* the scalp, the face, the genital organs, the thigh, the bends of extremities, hands and feet and the legs.

(3) In chronic cases, the exudation disappears and the skin becomes thickened, or scaly, or covered with thick crusts.

Prognosis :

Some cases get well readily. These are due to external irritants. Recurrent attacks may, however, be troublesome. Once the skin is damaged, subsequent attacks are common and there is great resistance to treatment.

Treatment :

General : Milk diet is of great assistance to aid the cure. Sometimes a vegetarian diet is essential to cure the disease.

Curative :

(1) **Arsenicum**. Chronic forms of eczema, with great burning and itching. The skin is thickened.

(2) **Baryta Carb.** Eczema on the back of hands, skin rough, dry and chapped.

(3) **Berberis Aquifolium.** Scaly, pustular eruptions on the face.

(4) **Croton Tig.** This remedy relieves the itching of eczema rapidly and permanently ; small blisters.

(5) **Fluoric Acid.** A very valuable remedy in eczema with itching ; red vesicles having a tendency to scale off.

(6) **Graphites.** Moist, scabby eruptions on the scalp face, bends of joints, between fingers, and behind the ears. The eruptions ooze a gluey, thick tenacious discharge. Fissured eczema with great itching. Sometimes, the skin may be dry and horny.

(7) **Hepar Sulph.** Humid eczema of the scalp, sore to touch. The skin is very sensitive to touch and suppurates easily. It is also useful in eczema of the genital organs.

(8) **Kali Mur.** Eczema capitis and moist eczemas, when chronic and obstinate in character.

(9) **Mezereum.** The best remedy when crusts form and there is great itching, worse when warm and wrapped-up. Secretion dries quickly producing crusts under which a thick pus oozes.

(10) **Rhus Tox.** Eczema with vesicular eruptions, which are numerous with great itching. The skin is often swollen and oedematous and these vesicles have a red circumference at the base. Symptoms worse at night, in damp weather and in winter.

(11) **Sulphur : Eczema Erythematosum.** Aggravation from washing ; scratching makes the part burn intensely ; tendency to pustular eruptions ; eruptions of yellow crusts.

(12) **Rhus Venenata.** A single dose of this medicine in 30th potency will sometimes suffice in a simple case. In case it aggravates, the medicine should not be repeated but the result should be watched for some time, until a higher dose becomes necessary.

(13) **Alumina.** Chapped or dry eczema ; intolerable itching in warm bed.

(14) **Urtica Uren.** Eczema with burning, itching and stinging.

(15) **Arsenicum.** Chronic dry eczema (Lyc. in dry scaly eczema).

(16) **Mercurius Cor.** Obstinate eczema including eczema capitis.

Note : Tuberculinum and syphilinum are the most important remedies in all skin affections.

DRUG ERUPTIONS

(Dermatitis Medicamentosa)

Definition :

Various drugs, apart from causing other disorders, produce skin eruptions of a macular, papular, purpuric or vesicular type. The most important of these drugs are arsenics, bromides, iodides, mercury, gold, sulphur drugs, penicillin and anti-biotics. Some persons are unduly more susceptible to drugs than others. These drugs cause toxic effects, either when they are applied externally, or used internally.

Etiology :

It is assumed that reactions are due to the presence of antibodies against the drug itself or against an antigenic alliance between the drug and a protein in the blood or tissues. This assumption is based partly on experimental studies.

Features :

- (1) Arsenic eruptions are red, or of urticaria type.
- (2) Bromides produce acute type of eruptions, which tend to persist for a long time.
- (3) Iodide papules are common on the face and extremities.
- (4) Mercury eruptions are red, but occasionally purpuric or vesicular, located in the groin and armpits, or palms and soles along with stomatitis.
- (5) Gold produces purpura and boils.
- (6) Sulphur develops some type of rash.

Treatment :

(i) Carbo Veg., China, Nux V., and Hepar will antidote arsenic allergy.

(ii) Camphor, Ammonium Carb., and Nux Vom. will neutralise the bromide and iodide allergy.

(iii) Mercury allergy will be ameliorated by Hepar Sulph., Nitric acid, Carbo. Veg., Nux V.

(iv) Gold allergy will subside by Aurum salts, Kali iodide and Mercurius sol.

VIII—INFECTIOUS SKIN DISEASES**(Cutaneous and muco-cutaneous Leishmaniasis)****ESPUNDIA****Definition :**

The muco-cutaneous disease, Espundia, is an infective tumour formed of granular tissue due to Leishmaniasis brasiliensis, producing cutaneous nodules and ulcers on exposed surfaces, particularly legs, and may involve the buccal and nasal mucous membranes extensively, and also the lymph glands and lymphatics.

Etiology :

The disease is found in South and Central America with the exception of Chile, and is especially frequent among the wood-cutters and people living in forests. Sand-flies are the transmitting agents. It is the female sandfly (*phlebotomus*) that bites.

Muco-Cutaneous leishmaniasis results from infection with *leishmania brasiliensis*, which is morphologically and culturally indistinguishable from *L. tropica*.

Three main clinical types of *Espundea* exist which are caused by the main species (*L. brasiliensis*). The transmission of the organism is made by the bite of the female sandfly.

Symptoms and Signs :

(1) The first lesion appears at the sites of the sandfly bite. There may be several papules which develop into nodules and ulcerate.

(2) These sharply defined ulcers usually become covered with a crust of dried secretion with easily bleeding tissue beneath.

(3) New skin lesions may form as a result of ulceration.

(4) Metastasis in the mucous membranes of the face and occasionally of the rectum is the outstanding clinical pattern.

(5) The metastatic lesion on the nasal septum is the first clinical symptom in which an ulcer forms.

(6) The lesion extends and involves lips, soft palate and cartilages in a destructive process.

(7) In later stages, the bony structure of the nose gets involved.

(8) Lesions of similar nature may occur on the genitals and rectum.

(9) Some infections of the dry type are confined to the skin only and rarely ulcerate.

(10) Some eruptions persist for years. These are common on the ears and may be found on the face and limbs.

Diff. Diagnosis :

Clinically the fully-developed case of espundia may be mistaken for yaws, leprosy and syphilis. Differentiation depends upon the identification of the parasite microscopically.

The destructive form of this ulcer resembles syphilis, rodent ulcer, leprosy, and tuberculosis, but this never involves the bone. Microscopic investigation will complete the diagnosis.

Prognosis :

This is dangerous, if mucous membranes are involved, or pneumonia complicates the disease.

ORIENTAL SORE **(Delhi or Baghdad Boil)**

Definition :

This is also an infective cutaneous disease due to leishmaniasis tropica and does not involve the mucous membranes. This is of two types :

(i) Dry with late ulceration.

(ii) Moist with early ulceration. The disease is usually endemic, and occasionally epidemic.

Etiology :

Lesions of the skin and sub-cutaneous tissues are caused by infection with *Leishmania tropica*. They occur in a wide area of the world all over.

In some areas man is the only significant reservoir of infection ; in other areas dogs, cats and field rodents are important reservoirs. The parasite is transmitted in the usual way by the bite of the sandfly, *Phlebotamus*, the species of vector varying from one locality to another. The lesions are classified as "Wet" and "Dry", the former occurs in rural desert areas and the latter in dry towns and cities.

This leishmaniasis is usually endemic, but occasionally epidemic. It occurs more in children than adults. One attack offers complete or considerable immunity to superinfection.

Symptoms and Signs :

(1) The dry type commences as a small red papule which gradually enlarges, softens, and becomes purplish, glazed and scaly, surrounded by a narrow zone of inflammation. This remains as a blind boil for a year or more, or becomes covered with a yellow crust and ulcerates within three or four months. It may enlarge the neighbouring lymph glands. (The sores may be single or multiple.)

(2) The moist type ulcerates in one to two weeks. Lymphangitis is common, and the secondary bacterial infection is frequent.

(3) The sore appears a few weeks or months after the infection and the lesions may be single or multiple.

(4) The first sign is a small itchy papule.

Prognosis :

The condition is practically never fatal, even when the patient is untreated. The disease may last for less than 6 months.

Diff. Diagnosis :

Clinical differentiation from syphilis or lupus may be necessary, particularly in lesions in which the parasites are scanty. Parasitological diagnosis clinched the issue. Cutaneous leishmaniasis does not give rise to a positive Wasserman reaction and does not respond to penicillin. Diagnosis is usually obvious in endemic areas. Confirmation, if necessary, may be made by the demonstration of the parasite.

Treatment :

Thallium is suggested as one of the suitable remedies for dermal trophic lesions under 'Espundia' and 'Oriental Sore'.

IX—MISCELLANEOUS SKIN DISEASES**(Squamous Dermatitis)****PSORIASIS****Definition :**

Psoriasis is a common condition of sharply margined reddened areas of skin with abnormal scaling. It is most variable in its intensity and course, remissions, recurrences, and aggravations being characteristic features.

Etiology :

The fundamental abnormality appears to be a biochemical fault in epidermal cell formation with a too rapid turnover of cells resulting in abnormal horn cells. The fault is inherited in one among five children from a psoriatic patient. The first signs are usually noted in the second or third decades but it may first appear in children under 10 or in persons over 30 years or even in old age. Precipitating factors are the hereditary predisposition infection, an unfavourable environment, emotional stress and trauma to the skin.

Classifications :

Psoriasis can be divided into 7 types :—

- (i) Guttate psoriasis (often in childhood).
- (ii) Localised extensor psoriasis.
- (iii) Flexural psoriasis.

- (iv) Widespread or universal psoriasis.
- (v) Pustular psoriasis of the palms and soles.
- (vi) Widespread pustular psoriasis.
- (vii) Psoriasis of the nails.

(1) **Guttate Psoriasis :**

This has a history of infection—a streptococcal throat infection, some ten days to three weeks before the onset of the rash. It may begin as a reaction to scarlet fever, chicken-pox, measles or mumps.

The lesions are pink, flat papules with scaling and slight itching. The lesions are widespread but affect the hands and feet less.

Diff. Diagnosis :

(i) **Secondary Syphilide.** In psoriasis, there is no lymph node enlargement or mucosal involvement. Although scalp is affected, there is no loss of hair.

(ii) **In pityriasis rosea.** The lesions are oval, pink or brown-coloured and occur on the trunk and proximal parts of the limbs.

(iii) **Lichen planus.** Presents with itchy polygonal papules with a waxy glance, mostly on the flexor surfaces.

Prognosis :

This form generally clears in about three months under good treatment or it may persist with enlargement of some of the lesions.

(2) **Localised Extensor Psoriasis :**

This type may begin in childhood or in adulthood and is most common just at or below the tip of the elbows and over the patella (knee cap). Other sites may be lumbo-sacral region, the calves, the forearms and the scalp. The lesions may be nummular (coin-shaped), circular, circinate, or irregular in shape. There is usually no itching.

Diff. Diagnosis :

Nummular eczema may resemble a nummular psoriasis, but the lesions are papulo-vesicular, exuding or crusted.

(3) **Flexural Psoriasis :**

This type of psoriasis is seen in the obese, and friction between the opposing surfaces plays an important part. The axillae, sub-mammary folds, umbilicus, genito-crural folds and inter-gluteal cleft may be affected. Secondary infection with *candida albicans* may occur. Sometimes diabetes coexists. The lesions are sharply margined, smooth, shiny red areas without satellites.

Diagnosis :

The presence of psoriasis elsewhere usually helps in differentiation with *infective dermatitis*. The absence of satellite lesions and sharply demarcated pink involvement of opposing surfaces is characteristic of this psoriasis.

(4) **Widespread or universal psoriasis :**

In this, the involvement may be widespread, sub-total or universal. The lesions may be coin-shaped, polycyclic or ring-shaped. Scratching the skin causes the development of psoriasis in the line of the scratch. The sites commonly affected may include the scalp, the trunk, the extensor surfaces of limbs and the nails. Sometimes the flexures are also affected. The face and hands usually escape except in severe cases. The joint disease (arthropathy) is often associated with excessive psoriasis. The reason for the extension may be some infection.

(5) **Pustular psoriasis of the palms and soles :**

The lesions occur on the palms and soles and sometimes on fingers or toes. The pustules are creamy, to begin with, and turn into brown macules. Psoriasis may also occur on the palms only as ill-defined areas of redness.

Diagnosis :

This is to be distinguished from eczema in which there is usually uniform vesiculation. Distinction is also made from ringworms of the foot in which there are translucent vesicles or irregular triangular peeling patches.

(6) Widespread pustular psoriasis :

This develops as a pustular eruption with fever, malaise and leucocytosis. The pustules appear in crops and the prognosis is poor. Arthropathy is common. It is, however, a rare condition. The flexures are worst affected. The nails are thickened or detached from their beds by collection of pus. The buccal cavity and external genitalia may be affected. Etiological factors are infection, metabolic disorders, particularly hypo-calcaemia, activated by pregnancy, and diabetes mellitus. Various drugs have been reported to cause it.

(7) Psoriasis of the nails :

This usually occurs with psoriasis elsewhere, but occasionally it is the only evidence of the disease. The mildest form is a thimble-like pitting of the nail plate. This may involve several nails. Pitting is the strongest diagnostic sign of psoriasis.

With worse involvement, there is brown or yellow colouration of all of the nail plates without thickening. Paronychia involvement causes deformity.

Diagnosis :

This is to be differentiated from ringworms and eczema affecting the nails. Ringworm is usually associated with toe-clefts, or on feet or hands and groins. The nails are usually dirty grey with irregular deformity.

Treatment :

General : Abstain from alcohol.

Curative :

Arsenicum. A general remedy in all cases of skin troubles, when the skin is thickened with sensations of burning, itching and swelling.

(1) **Borax.** This is considered a curative remedy in many cases of psoriasis.

(2) **Graphites.** Eruptions and spots behind the ears, palms or backs of hands ; syphilitic psoriasis.

(3) **Kali Bromatum.** A leading remedy in psoriasis, when nervous symptoms prevail.

(4) **Kali Arsenicum.** Psoriasis, skin dry, scaly, withered in bends of arms and knees.

(5) **Petroleum.** Worse from cold and in winter.

(6) **Cuprum, M.** Psoriasis in young girls.

(7) **Merc. Bin. Iodide.** Syphilitic and non-syphilitic subjects.

(8) **Thyroidinum.** Psoriasis in chilly and anaemic subjects. Dry impoverished skin, cold hands and feet.

(9) **Berberis Aquifolium.** Scaly pustular eruptions on the face. This drug is one of the most reliable remedies in the cure of psoriasis.

(10) **Arsenic Iodide.** Dry, scaly, itching with marked exfoliation of skin in large scales.

(11) **Chrysarobinum.** Squamous (scaly) lesions, associated with foul smelling discharge and crust formation.

(12) **Lycopodium.** Dry, shrunken skin, especially palms.

(13) **Sulphur.** Dry, scaly, unhealthy skin, every little injury suppurates.

OEDEMA

Definition :

By oedema is meant a demonstrable excess of fluid generally in the sub-cutaneous tissues. It may be noted that accumulation of 14 lbs of fluid in the tissues can occur without being clinically demonstrable.

Causes :

Oedema of all forms is the result of water and sodium retention in the tissues, and is produced by :

(1) an increase in capillary pressure, as is noticed in cardiac oedema and oedema produced by venous obstructions,

(2) a reduction in the protein osmotic pressure of the blood, such as occurs in chronic nephritis, nephrosis and oedema due to deficiency of protein and vitamins, and

(3) alteration in the permeability of the capillary wall, produced by toxins and oxygenless blood, occurring in acute nephritis, inflammatory conditions, anaemia and angineurotic oedema (a severe form of urticaria involving face, hands or genitals and the mucous membrane of the mouth and throat).

Treatment :

See 'Ascites' "Laryngitis" "Heart disease" "Kidney and Liver diseases" "Pleurisy". The following remedies may be studied and used :

- (1) Apis
- (2) Arsenic
- (3) China off.
- (4) Convallaria Majalis
- (5) Helleborus (Hydrocephalus)
- (6) Liatris-Spicata (due to liver and spleen diseases)
- (7) Mercurius Cor.

Dietary :

(1) Skimmed milk and vitamins had better be given in addition to usual diet, lacto-vegetarian and fish. Rest and warmth are necessary. Salt should be restricted.

EPIDEMIC DROPSY

(Argemone Poisoning)

Definition :

This is a stiff and a severe type of oedema with vascular changes, cardiac insufficiency and marked redness of the skin, commencing from legs and spreading epidemically during the rainy season or early autumn as a result of ingestion of seeds of the Mexican poppy or their products.

Etiology :

It has been shown by clinical tests that the disease spreads through the adulteration of mustard oil with an oil from a poisonous

seed called *Argemone Mexicana*, which sometimes grows as a weed amidst the mustard crop and has especially affected the people of Bengal, Bihar, Orissa, Uttar Pradesh and Madhya Pradesh. Luckily, the disease has decreased considerably since 1941, at least so far as its epidemic character is concerned. The oil of the poisonous weed, referred to above, was injected in other animals, and two important changes were noticed :

- (1) That the blood vessels were dilated.
- (2) That the oil disturbed the carbohydrate metabolism.

The epidemic is at its highest during the rains, or soon after rains i.e. in July and August and lowest in April. The results of this adulteration resemble effects of vitamin B deficiency. Children under 4 years are not affected, but all other age-groups may be affected.

Symptoms :

- (1) The onset is insidious in most cases.
- (2) Languor, loss of appetite, vomiting and diarrhoea, attacking the whole family sharing the same food are the initial symptoms. These are followed by oedema at a rapid rate, on legs especially.
- (3) Colic and tenesmus and flatulence appear.
- (4) Sometimes there are painful bleeding piles.
- (5) Palpitation.
- (6) Cough and severe dyspnoea and occasionally general anasarca, with effusion into pleural and pericardial cavities.

Signs :

- (1) Oedema appears, rapidly after the appearance of the above symptoms. This is of a stiff type and leaves an impression only on strong pressure.
- (2) Over this oedema, there is a red flush, disappearing on pressure.
- (3) Oedema spreads from legs nearly over the whole body and is of a patchy nature.

(4) Rise of temperature to about 100.4° F. in the evening or mild fever of a remittent type.

(5) Tachycardia.

(6) Dilatation of heart and low blood pressure.

(7) With red flush, there may be nodules on the skin, in some cases, blackish pigmentation is found on the face and sometimes on the chest and abdomen.

(8) Hair fall off.

(9) Eye complications and haemorrhage from nose, stomach, and anus.

Complications :

These are :

(1) Entro-colitis.

(2) Congestive heart failure.

(3) Coma.

(4) Pulmonary Oedema.

(5) Bleeding from various membranes, especially the eyes.

(6) Glaucoma is one of the serious complications.

(7) Abortion in pregnant females.

Diagnosis :

Diagnosis is easy in a recognised outbreak but may be difficult in isolated cases.

(1) Acute oedema appearing in several members of a family or of a community, known to use mustard oil, is highly suggestive.

(2) The *wet beri-beri* and *famine oedema* may cause confusion. The type of diet or lack of it is important in differentiating epidemic dropsy from these conditions which usually develop more slowly. In the former case, there may be prominent associated nervous signs.

Treatment :

General : (1) High protein diet with moderate fat and less carbohydrates is considered essential. But milk would suit better, and this and fish may be allowed liberally along with vegetables and fruits.

(2) Salt must be restricted.

(3) Avoid flatulence and diarrhoea.

Curative :

See 'Oedema' Diarrhoea, Urticaria and other connected diseases, the chief remedies being Elaterium, Arsenicum and Rhus Tox.

CHAPTER—IX

LOCOMOTOR SYSTEM

(JOINTS AND SKELETON)

*(DISEASES OF JOINTS, BONES AND
CONNECTIVE TISSUES)*

LOCOMOTOR SYSTEM

I—PATHOLOGICAL SYMPTOMS AND SIGNS OF LOCOMOTOR SYSTEM

(Consisting of bones, joints and connective tissues)

The human skeleton is so exquisitely and perfectly set with bones, joints and connective tissues round about its trunk, arms, legs, feet, neck etc. that it can, not only keep straight and erect in a healthy condition, but a person can also sit, move about and bend in all directions, with ease and comfort.

In pathological conditions, however, the locomotor system suffers a set-back and manifests certain indications, by which it becomes possible to recognise the nature and type of its ailment. The indications are sub-divided into :

(a) Symptoms :

(a) Symptoms which the patient can describe himself are :

(1) Spontaneous pain in the back (backache or lumbago).

(2) Inflammation and tenderness of joints.

(3) The discomfort and difficulty, the patient feels, in making bodily movements.

(b) Physical Signs :

(1) Fractures and deformity in bones.

(2) Enlargement or swelling of bones.

(3) Any overgrowth in or degeneration of the bony structure.

LUMBAGO (Backache)

Lumbago is pain in the lower part of the back. The most common cause is the herniation of the vertebral disc. Another cause may be exposure to cold and wet or some kind of muscular strain or sprain or lifting heavy weights. Other causes are rare but are

important to recognise. Generally speaking the cause is secondary to focal infection or metabolic disorder. This includes spinal tumour, ankylosing spondilitis, tuberculosis and a malignant disease in the pelvis.

The onset of lumbago may be dramatic in suddenness. The patient is struck down with an agonising pain in the small of back which renders movement impossible. After periods of remissions, the paroxysms may occur.

Treatment :

(1) **Antim. Tart.** Sensation of weight hanging on coccyx and dragging downwards, or violent pain, the slightest movement causing retching ; cold and clammy sweat ; backache after eating, and while sitting.

(2) **Aconite.** From dry cold or from a draught ; pain sharp, as if sprained, or pain excited by touch.

(3) **Cimicifuga.** When pain is accompanied by restlessness and sleeplessness, as a result of, perhaps, muscular exercise or exertion.

(4) **Rhus Tox.** Stiffness in the back, painful on motion, bruised or burning pain, better during continued motion ; lumbago from damp cold.

(5) **Bryonia.** Lumbago excited by motion ; muscles sensitive to touch, bruised feeling in the back, when lying on it. It is generally caused by dry cold.

(6) **Dulcamara.** Pain after stooping for a long while.

(7) **Berberis Vul.** Pain with urinary or rectal complaints. The pain is greater] while sitting or lying down in the morning, or waking up.

(8) **Rhododendron.** Pain from dry cold and greater on approach of storm.

(9) **Arnica.** Pain from injury.

(10) **Aesculus Hip.** Dull backache, walking almost impossible, scarcely able to stoop, or rise after sitting, especially with constipation and piles.

(11) **Kali Bich.** Pains in paroxysms, shooting at times.

(12) **Sulphur.** Lumbago in venous subjects, cannot walk erect, violent only when stooping, greater at night in warmth of bed, after taking cold or heavy lifting, comes on during rest and goes off on motion.

(13) **Nux Vom.** Pain, as if beaten, greater during motion than in rest.

(14) **Merc. Sol.** Sticking in small of back on breathing, pain greater on going to bed, better on motion.

(15) **Hypericum.** For the backache of women who are forced to lift and strain by going up and down the stairs frequently.

(16) **Gnaphalium.** For chronic backache, worse from continued motion, better resting on the back.

(17) **Calc. Fluor :**

(i) Lumbago in the lower part of the back, worse on beginning to move and relieved by continued motion. (ii) Lumbago from strains.

(18) **Kali Phos.** Rheumatic lameness worse on rest or rising from a seat.

(19) **Sepia.** Backache from a uterine disease, worse while sitting. (*Cimicifuga*, if *Sepia* fails.)

(20) **Staphysagria.** Backache from sexual excesses. (*Picrie Acid*, if this fails.)

(21) **Cimicifuga.** It has also a sudden catch or click in the back.

(22) **Lycopodium.** Pain and stiffness in small of back.

(23) **Kali Carb.** Small of back feels weak; lumbago with sudden sharp pains, relieved by pressure.

PERIOSTITIS

Causes :

Periostitis is inflammation of the periosteum, the membrane covering a bone. It may be caused by syphilis, rheumatism, or scrofulosis.

Treatment :

(1) **Mezereum**. Simple periostitis, pain and burning in tibia and long bones or pain in hip and knee.

(2) **Aurum Mur**. Periosteal swelling of lower jaw ; syphilitic periostitis.

(3) **Merc. Sol**. Rheumatic pains in limbs and bones at night with oily perspiration.

(4) **Silicea**. Pain in knee, as if tightly bound. Calves, tense and contracted. Scrofulous cases.

(5) **Phytolacca**. Shooting pain in right shoulder with stiffness and inability to raise arm.

(6) **Phosphorus**. Stitches in elbow and shoulder joints, tibia inflamed and necrosed. Joints suddenly give way.

(7) **Angustura Vera**. Rheumatic and paralytic complaints great difficulty in walking with cracking of joints. Stiffness, pain and tension of muscles and joints, caries of long bones.

FRACTURES

Fracture is a breach in the continuity of a bone. There is no communication with external air in a *simple fracture*. A *compound fracture* is one in which the broken bone gets displaced, permitting the wound to have communication with air. A *complicated fracture* is one in which a bone is broken into several pieces. In an *impacted fracture*, one end of the broken bone is driven into the other. In the *incomplete fracture*, the bone is only cracked or fissured.

Treatment :

Before the arrival of the doctor, apply a linen bandage dipped frequently in cold water or diluted *Arnica Tincture*. Internally give

Aconite, if the patient is very weak or has fainted, and after some hours *Arnica*. If concussions occur, give *Chamomila* followed by *Hyoscyamus*. After the bone has been set by the doctor, give *Symphytum*. Should the bone not unite readily, give *Calc Phos*.

II—DISEASES OF BONES AND CONNECTIVE TISSUES

INFANTILE HYPEROSTOSIS CAFFEY'S DISEASE

Definition :

Hyperostosis is a rare condition of tender swellings appearing suddenly over the lower part of the extremities of soft tissues.

Clinical features :

This is a rare condition of unknown etiology, affecting the skeleton and the adjacent soft tissues. Infants of less than 6 months in age, more commonly males than females, are affected. Tender swellings appear over the lower part of the face, thorax or extremities. There is no fever or inflammation of glands (adenitis). The baby is pale and irritable. There may be signs of pleurisy. The affected limbs cause pain. Protrusion may occur. E.S.R. is raised and platelet count in many cases is very high.

Diagnosis :

Radiologically all parts of the skeleton with the exception of the phalanges and vertebral column may be affected including the pelvis and the cranial vault. The lower jaw is almost always involved and the clavicles and ulnae commonly. The first change is appearance, within a week or so of the onset, of a sub-periosteal shadow along part or the whole of the diaphysis, sometimes one surface only being affected at first.

Prognosis :

Complete recovery is not ruled out, but there may be a few fatal cases. The swellings subside spontaneously within a few weeks, but they may recur in a few cases.

Treatment :

- (1) Calc. Fluor.
- (2) Kali Iod.
- (3) Mer. Sol. & Phos.
- (4) Silicea.
- (5) Hecla.

OSTEOPOROSIS**Definition :**

Osteoporosis is a skeletal disease with reduction in bone (too little bone) mass without any change in chemical composition of the rest of the bone. The term should not be confused with *osteomalacia* which is also synonymous with rarefaction (thinness) of the bone.

Etiology :

The main causes are :

- (1) Endocrine disturbances, such as, hypogonadism, Cushing's syndrome, acromegaly and thyrotoxicosis.
- (2) Nutritional disturbances, such as, scurvy, calcium or protein deficiency and alcoholism.
- (3) Idiopathic, such as, juvenility, pregnancy or senility.
- (4) Inherited.
- (5) Immobilisation of a limb.
- (6) Loss of gravity, when in space.

Clinical features :

- (1) Osteoporotic bones are brittle and so get fractured easily.
- (2) Early symptoms are nil.
- (3) Later, there is shortening of the trunk due to a series of fractures of different vertebral bodies.
- (4) Severe pain then sets in, which diminishes within 4 to 8 weeks.

(5) Constant pain in the back is a late symptom due to forward curvature.

(6) Besides the vertebrae, the pelvis, the ribs and the long bones are affected.

(7) The disease is progressive more in the juveniles than in the adults. The progressive phase is for a few years and then a recovery phase follows.

Diagnosis :

Radiology plays an important part in the diagnosis of osteoporosis. But as a similar loss in bone structure may happen in osteomalacia, the characteristic feature of osteoporosis is the fracture of the spine.

Treatment : Remedies :

(1) Calc. Phos.

(2) Symphytum.

(3) Silicea should be used after the bones have been set.

Note : For osteomalacia, see chapter XII on Disorders of Nutrition.

OSTEITIS DEFORMANS

(Paget's Disease)

Definition :

This is a constitutional disorder, which is somewhat rare, causing enlargement and deformity of many bones. It is not a generalised disease of the skeleton. The bones are affected in the following sequence : pelvis, femur, tibia, skull, fibula, clavicle, humerus, radius, and the rib. In a few cases, the disease is confined to one bone, or part of a bone.

Etiology :

Etiology is uncertain. The disease is sometimes hereditary. It is not inflammatory originally. But it seems likely that it is a disorder of mineral metabolism and is always associated with atheroma.

Symptoms and Signs :

(1) The onset is imperceptible, and attacks, usually in elderly males between 40 and 60 are common.

(2) Pains, varying from a dull ache to severe shooting or stabbing like a knife, are first noticed in the legs in some cases (shins) ; in others enlargement of head or bending of bones and loss of sight may be the first symptoms.

(3) The patient has a typical appearance. Later on, the face appears triangular with base upwards ; the legs and arms are bowed forwards and outwards ; the spine is rigid ; the bones are enlarged ; the height is reduced.

(4) Extensive arteriosclerosis and hypertension is possible.

(5) The over-affected bones are red and hot.

(6) X-ray examination proves enlargement of bones with deformity.

(7) Increased calcium in urine may cause death.

Treatment : Clubbing :

(1) Nux. Vom.

(2) Phosphorus.

(3) Strychninum.

Enlargement of Bones :

(1) Pituitary extract.

(2) Thyroidinum.

Inflammation of Joints :

(1) Mercurius Sol.

(2) Nitric Acid

(3) Aurum

(4) Kali Iodide

(5) Fluoric Acid

(6) Silicea

(7) Calcareo fluor.

Note : Remedies Nos. 5, 6 and 7, given one after another, will in all likelihood cure at early stages.

(DISORDERS OF CONNECTIVE TISSUES)**OSTEOGENESIS IMPERFECTA****Definition :**

This is a hereditary disorder of connective tissues which, although, involving the tissue throughout the body, produces the important defect in the bone substance, resulting in making the slender bones brittle. The important feature is that a moderate injury causes multiple fractures of bones with deformities of chest, skull and limbs and stunted growth.

Etiology :

Probably all cases are hereditary in origin. Many are due to a casual mutation (an alteration in the genes of a living cell), but 25% of cases are inherited through a single dominant gene in a family.

Clinical Features :

The disease varies widely in severity. Three types can be recognised.

(1) The first type is a severe prenatal form with scores of fractures throughout the body. The baby is either still-born or lives for a few days.

(2) The second type survives but suffers in life from repeated fractures, which produce deformities. Bending and walking may be impossible. They live a little longer than the first type.

(3) The third type has frequent fractures in childhood but the bones become stronger, although normalcy is out of question. Other defects are :

- (1) blue sclerotics are common ;
- (2) bone formation affecting the labyrinth causes progressive deafness ;
- (3) laxity of ligaments and hypotonia of muscles are common;
- (4) the muscles are wasted and feeble ;
- (5) with the shortening and bowing of the bones, the child's growth is stunted ;
- (6) intelligence, however, is normal.

Diagnosis :

Usually there should be no difficulty. But there might be some confusion with *achondroplasia* (Foetal Rickets). Radiological findings are usually characteristic.

Treatment :

(1) Calc. Phos.

(2) Calc. Carb. and remedies indicated under 'Rickets' may be used. (see Chap. XII)

ACHONDROPLASIA**(Foetal Rickets)****Definition :**

This is a hereditary disorder of cartilages (chondros) which do not ossify in the normal way with the result that the long bones do not attain normal length and are short but strong and stout. This is, therefore, the commonest cause of dwarfism with short limbs.

Clinical Features :

(1) The child has short limbs but a big skull, the frontal region bulging above the depressed bridge of the nose.

(2) Intelligence, dentition and sexual development are normal.

(3) The muscular system is so well-developed that the subjects are often capable of performing acrobatic feats.

(4) The patient walks with a waddling (stuffing) gait ; the legs are often bent and knees extended.

(5) The buttocks are prominent.

(6) The skin is thickened and may form folds.

(7) In older patients, paraplegia may develop.

(8) Very rarely a wedged vertebra is seen.

Treatment :

No treatment is necessary, except perhaps for paraplegia, if and when it occurs.

DYSCHONDROPLASIA

(Ollier's disease or multiple achondroplasia)

Definition and Etiology :

It is a disorder of cartilage growth and affects, therefore, only the bones preformed in cartilage. Parts or whole of the shafts of the bones become filled with masses of cartilage, resulting in their bowing and softening and affecting in the growth of the bones and shortening of limbs.

The *etiology* is almost unknown. Almost all cases are sporadic and the few examples reported suggest possible dominant inheritance with low penetrance.

Pathology :

Any bone preformed in cartilage can be affected, but spine, carpus and tarsus are rarely involved. All the limb bones are liable to get involved in the disease, especially the metacarpals and phalanges except the elbow regions.

Pathologically, it appears that the cartilage cells under certain conditions multiply to form irregular masses or long columns of cartilage which expand and distort first the metaphysial region and later the more central parts of the shaft. In the hands (rarely in feet also) the metacarpals and phalanges may be involved from end to end with great expansion and distortion of the original bony outlines.

Clinical Features :

- (1) Males and females are equally affected.
- (2) The shortening of the limb may be noticed in the newborn but diagnosis is not possible until swelling, bowing of bones, or perhaps knock-knee are noticed at about 2 years of age of the child.
- (3) Bone pains are rare and pathological fractures seldom occur.
- (4) Anaemia is unusual.
- (5) Bone lesions tend to progress until adulthood ; but in the hands they continue to develop throughout life, and rarely ulcerate.
- (6) With severe bone involvement, there may be *multiple haemangiomata*.

Diagnosis :

The distribution of the lesions is so characteristic that biopsy is seldom required.

Treatment :

Cartilage operation may be helpful in giving relief to the child. But knock-knee and bending of the bone may be treated by homoeopathic remedies.

Prognosis :

Complications rarely occur in childhood and seldom before middle age.

III—DISEASES OF JOINTS**Classification :**

The diseases of joints can be considered under four major headings :

(a) **Inflammatory arthropathy.** This group contains those forms of arthritis, in which joint inflammation of unknown cause is the chief feature *e.g.* rheumatoid arthritis.

(b) **Degenerative arthropathy :** *e.g.* Osteorothrosis (hitherto called, osteo-arthritis), where the cause is degenerative.

(c) **Metabolic deposition arthropathy.** In this group metabolic products are deposited in the joint, as in gout, where the cause is the crystalline deposition of sodium biurate. The non-crystalline deposits are also now recognised.

(d) **Miscellaneous.** These types include bacterial, viral and fungal infections.

(a) INFLAMMATORY ARTHROPATHY
(Rheumatoid Arthritis)

Definition :

Rheumatoid arthritis can be defined as a chronic polyarthritis affecting mainly the peripheral joints and accompanied by a

general systemic disturbance. The disease is characterised by the inflammation of the synovial membrane and periarticular tissues, sub-chondral osteoporosis, erosion of cartilage and bone and wasting of the associated muscles.

Etiology :

(1) The cause has not yet been quite established.

(2) In general, it is prevalent three times more in females than in males. The peak age is 35 to 40, though children are not quite free from its attack.

(3) The general belief that prevalence of rheumatoid arthritis is influenced by climate has not yet been established.

(4) The genetic or environmental factor is not yet quite understood, as no race or continent is free from this disease.

(5) The role of infection is still undetermined.

(6) Evidence of overactivity of immune processes is more substantial.

(7) It is sometimes precipitated by emotional disturbances, or excessive and long-continued worry and overwork.

(8) The presence in the serum of abnormal globulins with the characteristics of antibodies in high proportion of patients together with the histological appearances in the synovium have led to the idea that rheumatoid arthritis may be associated with a derangement of the immune response to exogenous antigens, or antigens derived in part from the patient's own tissue. The presence of these antibodies, which can in certain conditions react with material derived from a human source, suggests that they may play some part in the production of tissue damage, although there is no direct evidence as yet in support of the hypothesis.

Clinical Features :

(1) The onset is insidious in some cases ; in others it starts with fever and rapid involvement of many joints.

(2) Before the involvement of the joint, the patient may complain of general malaise, fatigue numbness and tingling in the extremities.

(3) Loss of weight, changes in motor nerves and general debility occurs.

(4) Commonly there is pain in the muscles and the cartilages.

(5) Small joints like those of the fingers and toes are first affected and then it spreads to wrists, elbows, shoulders, ankles and knees.

(6) In severe cases, temporal bones, joints and hips are also involved.

(7) Swelling is marked.

(8) As the disease advances, swelling and stiffness increase.

(9) Muscular atrophy takes place easily and becomes a permanent symptom.

(10) During the active stage, the signs of low fever, tachycardia, hypochromic anaemia, mild leucocytosis, raised E.S.R., decreased albumin, increased globulin and fibrinogen and altered plasma protein are commonly found.

(11) In advanced cases, muscle spasms and pain give rise to flexion deformities in the joints. At first these deformities are correctable but later permanent contractures develop.

(12) The fingers and phalangeal joints and others become deviated.

(13) In earlier stages, the disease is characterised by remissions and relapses, but as the disease advances, there is narrowing of the joint space, followed by bony and fibrous ankylosis and appearance of subcutaneous nodules, the most common site being the extensor surface of the forearm below the elbow joint in 10 to 20% of cases.

(14) In severe cases complication of amyloidosis and septic arthritis may occur.

Diff. Diagnosis :

Ordinarily there is no difficulty in recognising rheumatoid disease, but when it takes an uncommon turn, the points of distinction will have to be sorted in the following cases as follows :

(1) Rheumatic fever :

In this disease, fever is higher ; the finger joints rarely undergo spindling.

(2) Gonococcal arthritis :

In majority of cases demonstration of gonococcus in smears from urethra will confirm the diagnosis.

(3) Suppurative arthritis :

This type is usually monoarticular ; the signs of fever and infection are present.

(4) Gout :

In this, the onset is sudden. The first joint to be affected is metatarso-phalangeal joint of the big toe. A high blood uric acid may be present.

(5) Tuberculous arthritis :

The tuberculosis of the spine is the most common form in adults. The radiological appearances and demonstration of organisms in the synovial fluid will differentiate it from Rheumatoid arthritis.

(6) Osteoarthrosis :

This disease usually affects the larger joints, such as, the knees, the hips and the spine. Again in typical cases nodes appear, which, frequently cause deformity of the distal interphalangeal joints. The E.S.R. is usually normal.

JUVENILE RHEUMATOID ARTHRITIS (Still's disease)

This is the name employed for chronic polyarthritis which occurs in children. The clinical and other features are the same as those of rheumatoid arthritis with the addition of enlarged *lymphatic glands* and *splenomegaly*. The joints of the cervical spine are frequently involved. Skeletal growth may be much retarded. The treatment of both is the same.

SERO-NEGATIVE ARTHROPATHY (Ankylosing Spondylitis)

Definition :

Ankylosing spondylitis is an erosive inflammatory arthropathy affecting the sacro-iliac joints and the spine with a marked tendency

to ankylosis. The peripheral joints may sometimes be affected. It commonly affects young men in the third decade, but sometimes women may develop this disease.

Etiology :

The etiology is unknown. Two factors are, however, recognised :

(1) Sacro-iliitis is found in 9% of known relatives. Hence genetic factor would seem a likely one after a close study of family history and the radiological examination of the near relatives.

(2) Urogenital inflammation is invariably present in patients with ankylosing spondylitis. No organism has been regularly identified. Hence both genetic and environmental factors are important in the etiology.

Clinical Features :

(1) The initial symptom is that of backache, beginning insidiously and characterised by morning stiffness.

(2) Sometimes an acute attack follows trauma.

(3) The attack is sometimes pre-pubertal in 10% of cases with low back pain ; in some 10% of patients, the onset begins in a peripheral joint in lower limbs, *e.g.*, the knee, the ankle, or the foot.

(4) The disease tends to spread gradually upwards to make the spine rigid. Thereafter the disease spreads peripherally involving the hip joint.

(5) The physical signs are characterised by immobility of lumbar spine in all directions. Forced movement gives pain.

(6) Multisystem involvement occurs less commonly in spondylitis than in rheumatoid arthritis.

(7) *Iritis* occurs in 40% of cases.

(8) Ulcerative colitis and regional enteritis occur more frequently.

Diff. Diagnosis :

In *Osteoarthritis*, the sacro-iliac joints are rarely affected as they do in ankylosing spondylitis. Intervertebral spaces are commonly diminished on account of degenerative changes in the discs,

and exostoses develop at the edges of vertebral bodies. Another condition to be differentiated from spondylitis is *protrusion of the nucleus pulposus* of the intervertebral disc. Sciatica pain and scoliosis are common in protrusion but rare in spondylitis.

Prognosis :

With an early treatment, the prognosis is favourable.

Treatment :

General : Adjustment of diet and massage may be helpful.

Curative :

(1) **Ammonium Phos.** For chronic cases, where there are deposits of urates in the joints, and hands have become twisted and out of shape.

(2) **Causticum.** Stiffness of joints, tendons seem shortened and the limbs are drawn out of shape ; rheumatoid arthritis ; relief from warmth ; muscular pains and soreness of parts on which the patient lies.

(3) **Caulophyllum.** Chronic arthritis of the metacarpal, severity coming on suddenly ; great restlessness, motion aggravates.

(4) **Bryonia.** Acute arthritis ; joints swollen, red, shining and very hot, pains sharp and stitching and cutting ; aggravation from motion ; copious exudation ; acid condition of blood ; sour sweat.

(5) **Colchicum.** It has special affinity for fibrous tissues, tendons, ligaments and periosteum. It has shifting arthritis ; pains are worse in the evening. Joints are swollen and dark-red ; suitable for weak, debilitated persons ; specially a remedy for smaller joints of hands and feet (compare *Actea spicata* ; *Ledum* ; and *Rhododendron*).

(6) **Kalmia.** Arthritis of upper parts of the arms, and lower parts of leg, worse from going to sleep ; shifting or migrating pain ; great weakness.

(7) **Ledum.** Tearing pains, in smaller joints, travel upwards ; very little effusion ; symptoms worse from warmth of bed ; nodes formed and hardened soon ; weakness of limbs, and numbness and coldness of surface. *Lithium Carb* : Arthritis of finger joints and tendency to heart complications.

(8) **Pulsatilla**. When knee, ankle and the tarsal joints are involved ; pains are so severe that the patient is compelled to move (restlessness) ; migrating pains relieved by slow motion ; joints swollen and a feeling of ulceration under the surface.

(9) **Rhus Tox.** A great remedy for the deep muscles in rheumatism, but not for the joints in arthritis.

(10) **Guaiacum**. Arthritic lancinations followed by contractions of limbs.

(11) **Mercurius**. Lancinating pains in joints, worse at night.

(12) **Stellaria Media**. Shifting pains in all the joints with soreness worse by motion with pains in liver.

(13) **Dulcamara**. Rheumatic pains from cold and getting wet.

(14) **Arsenicum**. When the patient hugs fire and desires to be wrapped.

(15) **Benzoic Acid**. When the urine is strong-smelling and high coloured.

(16) **Sulphur**. For chronic cases suffering from skin eruptions ; acidity.

(17) **Calc. Carb.** Chronic cases suffering from acidity, with cold, clammy hands and feet, and heat of head and perspiration.

(18) **Rhododendron**. When muscular and fibrous tissues are involved, worse in stormy weather. Chronic cases.

(19) **Ruta**. Non-inflammatory cases, especially involving wrists and ankles.

(20) **Kali Bich.** Chronic cases with tearing pains in the joints.

(21) **Lycopodium**. Rheumatism of joints of hands, symptoms going from right to left.

(22) **Medorrhinum**. It should be thought of in cases of spondylitis.

(b) DEGENERATIVE ARTHROPATHY (Osteoarthrosis)

Definition :

It is characterised by degeneration of the articular cartilage and the bony outgrowths at the edges of the affected joints. Usually only

one or two of the larger joints are involved. The condition occurs among elderly people of either sex, but may appear at any age in a joint which has been damaged by disease or injury.

Etiology :

This disease arises as a result of an exaggeration of the normal ageing process in the joint. Malalignment, following fractures of the long bones, frequently gives rise to osteoarthritis in adjacent joints. Symptoms are apt to develop in the weight-bearing joints and in those subjected to excessive strain. Thus osteoarthritis of the hips, spine or knees is particularly common in those engaged in heavy labour, and in obese subjects. The disease does not appear before 50.

Clinical Features :

(1) The joints of the spine, the hips, the knees and the elbows are involved.

(2) Symptoms being gradual in onset, pain of an aching character appears after the joints have been used and relieved by rest.

(3) With the progress of the disease, joint movement becomes limited first by muscular spasm and later by the loss of joint cartilage and the formation of osteophytes.

(4) Muscular wasting is always present and this makes the joint much prone to injury.

(5) In majority of cases, the disease is confined to one or two joints especially the hips or the knees.

(6) In the middle-aged females a distinct form of osteo-arthritis occurs. The terminal interphalangeal joints of the fingers are commonly affected. Bony out-growths appear on the dorsal aspect of these joints and may give rise to considerable deformity and some pain, but little disability.

(7) Other joints, viz. spinal joints, the hips, ankles and knees may be involved.

(8) The E. S. R. is moderately raised in about onethird of cases.

Diff. Diagnosis :

This disease is easily differentiated from *rheumatoid arthritis* in which there is evidence of a general disturbance, and proximal

phalangeal and metacarpal joints are involved. But it must be borne in mind that in long-standing cases of rheumatoid disease, degenerative changes may appear.

Prognosis :

The rate of progress will depend on the amount of use to which the affected joints are put.

Treatment :

The following remedies are suggested :

- (1) Aur. mur.
- (2) Rhus Tox.
- (3) Ruta
- (4) Silicea
- (5) Kali Bich.
- (6) Flour Acid.

(c) METABOLIC DEPOSITION ARTHROPATHY

Introduction :

Two types of crystals may be deposited in joints :

- (1) Mono-sodium biurate.
- (2) Calcium pyrophosphate dihydrate.

The joint disease produced by urate deposition is called "gout", pyrophosphate deposition is best termed *Pyrophosphate Arthropathy*, and that by calcium although it has been popularly known as "Pseudo Gout", because of its resemblance with the first type.

GOUT

Definition :

Gout is an acute or chronic joint disease which results from the formation of urate crystals in the joints fluid, causing acute pain and swelling, first in one joint (usually the metatarso-phalangeal joint), and later deposition of crystals in the joint structure causes chronic arthropathy, characterised by the formation of tophi in the joint, in the structures elsewhere and in the renal tract.

Etiology :

(1) Primary gout is due to hereditary disorder. A family history of the disease is obtained from 50 to 80 per cent of cases.

(2) The disease is infrequent before 40 years of age.

(3) It is rarely a disease of women.

(4) In the past it was believed that excessive use of foods, high in purines (nucleoproteins from which uric acid is derived) was the primary and essential cause of gout. But this view is now not generally accepted, though there is some evidence to suggest that the acute attack can be induced by high purine diet in patients predisposed to gout.

(5) Secondary gout may occur as a complication of haematological disorders, such as, polycythaemia, leukaemia and myelofibrosis, and following administration of drugs of the chlorthiazide group. The precipitating factors are dietary indiscretions, over-indulgence in alcohol, idiosyncrasy to certain foods, injury, excessive exercise, intercurrent infection and surgical operations.

Clinical Features :

(1) The first attack involves only the big toe.

(2) The onset is usually acute with some irritability, malaise, or vague joint discomfort.

(3) Within a few hours the joint is painful, and exquisitely tender and sensitive to touch.

(4) Even the skin of the joint is usually red and dry but redness in case of the knee or the elbow joint is absent.

(5) The first attack subsides within a few weeks and future attacks which are sporadic occur traditionally in the spring and may now involve more than one joint.

(6) Gradually tophi develop in the ear, and in the neighbourhood of the affected joints.

(7) Joint deformity may now follow, if the patient remains untreated.

(8) The attacks hitherto occur with less severity and frequency.

(9) Renal impairment and hypertension may follow.

Diagnosis :

Gout may be confused with rheumatoid arthritis and other inflammatory arthropathy. The diagnosis of gout rests with family history of gout, absence of uric acid in early cases and negative result in radiological examination. In later cases, however, the high blood urea and characteristic radiological findings will clinch the issue.

Treatment :

Dietary :

(i) Proteins and alcohols should be stopped or curtailed to a reasonable extent.

(ii) Milk, vegetables, lean meat, fish, chicken and plenty of fluid are advised.

Curative :

(1) **Aconite.** Acute attacks of gout in feet. In the first few hours, this remedy will be useful.

(2) **Ammonium Phos.** Constitutional gout having tophi on the joints, is useful in chronic cases, where there are deposits of urates of soda in the joints, and the hands are misshapen.

(3) **Antimonium Crudum.** Gouty nodes in the joints with onset, of gastric symptoms ; chronic cases.

(4) **Arnica.** Extreme tenderness to touch and fear of anyone touching the affected parts, arthritic pain in foot, worse towards evening ; red big toe joint feels as if sprained.

(5) **Colchicum.** Is a great gout remedy, its indications are : Swollen, red and pale joints with a sensation of fear of being touched by someone ; great prostration of muscular system and abdominal bloating ; gastric symptoms and cardiac complications ; applicable to smaller joints—fingers, toes, wrists and ankles ; violent pains, worse towards evening ; exceedingly irritable.

Note : Colchicum should be prescribed only on the above indications, otherwise the trouble may fly to heart and other parts.

(6) **Ledum.** This is a useful remedy in gouty arthritis. The symptoms calling for it are :

- (i) ball of the great toe is swollen, sore, and painful on walking,
- (ii) pains are worse from warmth, pressure and motion,
- (iii) gouty nodes in joints,
- (iv) scanty effusions,
- (v) all pains travel upwards.

(7) **Picric Acid.** Useful when the joints are deformed.

(8) **Urtica Uren.** This remedy subsides the pain and swelling of joints, more than any other remedy can. It is meant for uric acid accumulations. It should be given in 5 drop doses in one dram of hot water twice a day.

PYROPHOSPHATE ARTHROPATHY

(Pseudo-Gout)

In acute conditions crystals of pyrophosphate are microscopically first seen in the synovial fluid, and later when the disease becomes chronic, in the cartilages and other articular structures, giving rise to degenerative changes. The cause of the disease is unknown, but there is a strong familial tendency. The disease does not show sex preference for males, which is characteristic of true gout. It commonly affects the middle-aged and the elderly. Hyperparathyroidism, haemochromatosis, and the true uric acid gout can occasionally be associated, but the mechanism, whereby these conditions cause pyrophosphate arthropathy is not yet clarified.

OCHRONOSIS

(Alkaptonuria)

Ochronosis may be regarded as an example of metabolic deposition disease in joints, causing arthropathy. The mechanism is different from crystal deposition disease in that the material deposited is not crystalline. Homogentisic acid, however, accumulates in cartilage causing it to become leathery and rigid, and thus prone to rapid degeneration. A characteristic osteo-arthritis follows, affecting particularly the spinal joints, the disc spaces becoming thin and ragged and a painful arthropathy developing. A peripheral joint may be affected, and severe disability may result.

(d) MISCELLANEOUS ARTHROPATHY FUNGAL INFECTIONS

(a) **Actino-mycosis.** Fungal infections of joints rarely occur. In actino-mycosis, commonly the jaw bone is affected, but occasionally vertebrae are involved from local spread. Bone abscesses also develop. The causative agent of this disease is *Actinomyces israeli*. The common types of affections, in this disease are *cervicofacial*, *dermal*, *pulmonary*, and *abdominal*. In the facial type there is a swelling like that of a sarcoma near about the angle of the jaw. The swelling is tender, somewhat painful and not as hard as sarcoma. With the progress of the disease, abscesses form and give rise to multiple sinuses. In the *dermal type* sometimes gummas appear on the skin. Rarely solitary lesions occur on hands from an infected tooth, as a result of trauma. In *pulmonary type*, actinomycosis accompanies cough, fever and haemoptysis, or sometimes wet pleurisy, and the whole picture is that of tuberculosis. In the advanced state there is loss of weight, wasting, intermittent fever and purulent expectoration. In the *abdominal type* the site of infection is the caecum or the appendix. From here the infection may spread to peritoneum, abdominal wall or even the spine, to the liver, to ovary and the fallopian tubes. Lastly the brain may be affected by direct spread from the adjacent lesion. For a correct diagnosis of actinomycosis, pus, pleural exudate, sputa, material from liver puncture and lymph nodes should be examined by a pathologist. Treatment should be conducted on a symptomatic basis.

(b) **Mycetoma (Madura Foot) :**

This disease is a chronic granulomatous infection with supuration similar to actino-mycosis. It affects the exposed parts of the body, especially the feet. The causative organisms are of two types *Actinomycetes* and *madurella mycetomi*. The habit of walking barefooted predisposes to this infection. Males are affected more than females. In this disease, numerous, small abscesses are found in subcutaneous tissues and may communicate with external nodules, and lesions of muscle, bone and fascia (a sheath consisting of fibrous tissue and fat).

The first signs are the presence of one or more hard, painless, subcutaneous nodules on the foot, and more rarely the hands, face

and limbs. After several months, swelling increases and nodules break down and ulcerate and sinuses are formed. Even in advanced cases, there is no pain and haemorrhage. Toxaemia and anaemia may result from secondary infection. Radiographs will reveal the bone involvement. The diagnosis will be established by identifying the nature of granules in pus. Culture studies are necessary for investigation of the organism. The following remedies are suggested :

- (1) **Arsenicum**
- (2) **Silicea**
- (3) **Lachesis**
- (4) **Phosphorus**
- (5) **Thuja.**

Other fungal infections which cause joints disease are :

(1) **Blastomycosis** which causes punched-out lesions in the neighbourhood of joints or spine.

(2) **Histoplasmosis** may be associated with monoarticular destructive arthritis.

(3) **Sporotrychosis** may also affect joints causing disruptive local lesions.

(ii) BACTERIAL INFECTIONS

Suppurative arthritis or Septic Arthritis

The most common bacteria to invade joints are staphylococci and haemolytic streptococci, gonococci and meningococci, escherichia coli and many others. Tuberculosis presents a different problem and is dealt with below.

Septic arthritis may occur at any age and affect either sex, but is particularly common under the age of 15 years and in the elderly. It is usually monoarticular, affecting knee or shoulder joint particularly and of acute onset. The joint is acutely inflamed and painful. When the organism is *gonococcus*, a migratory poly-arthritis may precede localization in a single joint. Fever and rigor frequently occur.

Diagnosis :

This depends on aspiration of the joint fluid for bacteriological examination. The joint fluid will be purulent with a high cell count over 15,000 per c.mm. (neutrophils chiefly). Blood culture may also be useful.

Diff. Diagnosis :

Acute rheumatic fever, crystal synovitis, rheumatoid arthritis or any other inflammatory arthropathy may present in an acute manner resembling septic arthritis.

TUBERCULOUS ARTHRITIS

This is a rare disease. This is also monoarticular. The spine is affected and is characterised by local tenderness and destructive radiological changes affecting the disc space. In a peripheral joint, the hip or knee is most commonly affected with a gradual onset of a slowly developing monoarticular arthropathy. The diagnosis is established by synovial biopsy; by the demonstration of tubercle bacilli in the smear of joint fluid, by culture or by guinea-pig inoculation. Radiography of the chest may show a primary focus, and of the affected joint may show destructive changes generally developing.

(iii) VIRAL INFECTIONS**Rubella and Mumps**

Occasionally other virus infections, such as, glandular fever and small-pox may be associated with a true arthritis. This may be polyarticular and superficially resemble rheumatoid arthritis or rheumatic fever. However when this occurs in the presence of an epidemic, the diagnosis is clear. The arthritis is limited, lasting a few days or a few weeks. Hence complete recovery takes place. Treatment should be symptomatic.

Treatment :**Curative :**

See 'Rheumatoid Arthritis' also.

Migratory Rheumatism. Pulsatilla ; Kalmia ; Bryonia ;

Colchicum ; Sulphur ; Kali Bichromicum ; Kali Sulph ; Lac. Caninum.

Gonorrhoeal. R. Argentum Nit. ; Clematis ; Daphne indica ; Guaiacum ; Medorrhinum ; Pulsatilla ; Sarsparilla ; Thuja.

Syphilitic or Periosteal. R. Kali Bich, Kali Iod., Mezereum, Phytolacca.

Following Dysentery. Bryonia, Rhus Tox, China Sulph.

Following Meningitis. Belladonna, Opium.

Following Septic Conditions. Silicea, Sulphur, Mercurius, Arsenicum, Arnica, Bryonia, Rhus Tox.

CHAPTER—X

NERVOUS SYSTEM

SECTION—1

***DISEASES, DISORDERS, INFECTIONS, TUMOURS OF NERVES,
BRAIN AND SPINAL CORD INCLUDING INVOLUNTARY
MOVEMENTS***

SECTION—2

DISEASES OF VOLUNTARY MUSCLES



Fig. I - Several Parts of the Brain.

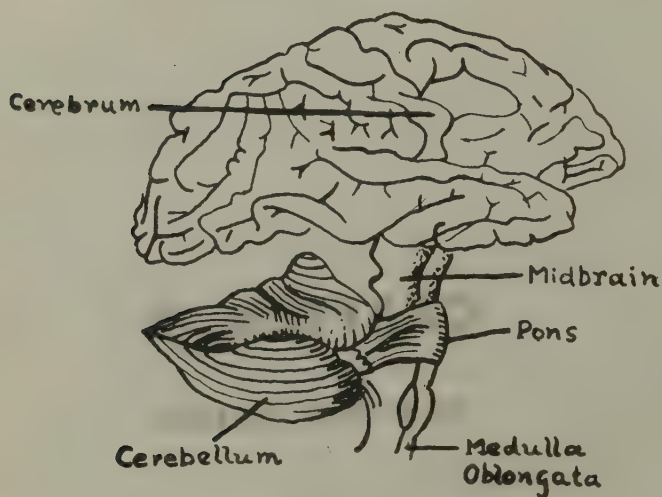
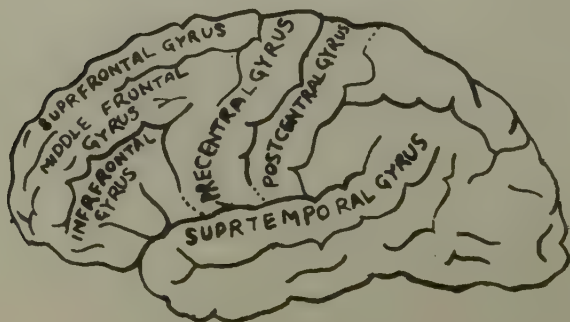


Fig. II - The Lateral Surface of the Left Cerebral Hemisphere



NERVOUS SYSTEM

I—STRUCTURE OF NERVOUS SYSTEM

The two broad divisions of the nervous system are

(a) the *Central nervous system* consisting of

(i) the brain and

(ii) the spinal cord.

(b) The *peripheral nervous system* made up of the peripheral nerves.

The central nervous system, viz., the brain, the spinal cord and the cerebral axis contains tissues—white and grey matter plus the connective tissues, called the neuroglia (supporting tissue of the brain and cord). The white matter is formed chiefly of *nerve-fibres*, and grey matter of the *nerve cells* and *dendrons*. Twelve pairs of cranial nerves arise from the brain and thirty-one pairs of spinal nerves arise from the spinal cord. The two together form the peripheral system.

The peripheral nervous system includes

(i) cerebrospinal system and

(ii) autonomic nervous system (sympathetic system).

In the cerebrospinal nervous system, the afferent nerve-fibres pass directly from the cerebral cortex to the effectors. In the autonomic system, however, the afferent fibres do not pass directly to the ganglia, placed outside the nervous system, where they join the adjacent neurones, whose axons (fibres) carrying the impulse pass to the effectors (motor nerves).

(i) **The Brain :** (See Fig. 1)

It consists of

(1) **Medulla oblongata.**

- (2) **The pons,**
- (3) **The cerebellum,**
- (4) **The mid-brain**
- (5) **The two hemispheres of Cerebrum.**

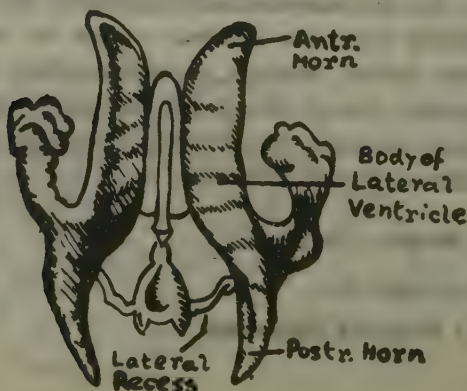
The mid-brain, the medulla oblongata connect the cerebrum with the spinal cord ; the two together constitute the *brain stem*.

(ii) The spinal Cord :

The spinal cord is the elongated, almost cylindrical part of the central nervous system occupying upper two-thirds of the vertebral canal having 33 bones. Its average length is 45 cm. and its weight is about 30 gm. At the top, it continues with the *medulla oblongata*.

The spinal cord is composed of grey and white nervous matter, in both of which there is a connecting link. The grey matter is situated centrally in the form of a column throughout the whole length of the spinal cord. On taking a transverse section, the column is seen consisting of right and left symmetrical portions, called *anterior and posterior horns*, joined by a transverse connector of grey matter, called *Lateral horn*, the whole bearing the resemblance of the letter H (Fig. III). The whole matter is also arranged in three rows of anterior, posterior and lateral horns. In each column there are descending, ascending or inter-segmental tracts for the paths of the nerve-fibres both motor and sensory.

Fig. III-Ventricular Cavities



Lesions in spinal cord :

The lesion in the spinal cord may be a lesion in any of these tracts, *e.g.*

(i) Acute poliomyelitis and progressive muscular atrophy may have a lesion of the anterior horn cells ;

(ii) Paraplegia is a lesion in pyramidal tract ;

(iii) Syringomyelia is a lesion in spinothalamus tract and the anterior horn cells.

(iv) Friedreich's ataxia has a lesion in all the spinal tracts except anterior horn cells ;

(v) Tabes dorsalis is associated with the lesion of the posterior tract.

Divisions of the Brain : (Refer to Fig. 1)

(1) **Medulla oblongata.** The medulla oblongata extends from the lower margin of pons to the transverse plane passing above the first pair of cervical nerves and consists of anterior, posterior, and lateral horns, containing white and grey nerve cells and fibres.

(2) **The pons.** The pons is situated in front of the cerebellum. Above it lies the *mid-brain*. Behind and below, it is continuous with the medulla oblongata. It consists of transverse fibres, arched like a bridge. It rests on the sphenoid bone (a wedge-shaped bone at the base of the skull) and on the upper portion of the occipital bone. The internal structure of the pons consists of grey and white matter.

Lesions in Medulla and Pons :

The lesions in pons lie in motor and sensory tracts, cranial nerves and nuclei, and are characterised by paralysis, and ataxy, for example, hemiplegia or paralysis of the eye and the face, squint, diplopia and rise in temperature. Often the paralysis is bilateral. These lesions cause extensive motor, sensory, and coordinative disturbances.

(3) **Cerebellum.** This is the largest part of the hind brain lying behind the pons and the medulla. Its median portion is separated from these structures by a cavity of the fourth ventricle.

The cerebellum consists of two hemispheres, joined by a narrow median strip. The cerebellum exhibits a profound difference in structure from the spinal cord, the medulla, and the pons ; for its grey and white matter is arranged in the opposite manner, thus resembling the cerebrum, where white matter forms the central cortex, which is much thicker in the lateral parts than in the median area. The grey matter is found in two situations,

- (i) on the surface forming the cortex and
- (ii) as independent masses in the interior. (Refer to Fig. II)

Lesions in cerebellum :

An acute lesion causes sensory disturbances ;

(a) Muscular *hypotonia*. *i.e.*, less and diminished movement and strength.

(b) **Ataxia**, *i.e.*, the clumsiness and disorderliness of movements.

(c) **Want of precision**, a tendency to overdo, *e.g.*, if a person wants to touch his nose, he overshoots the mark.

(d) **Contraction** is delayed *e.g.* if a person bends his elbow, his arms suddenly rebound and hit his face.

(e) Sometimes the action of the muscle is carried out in slow, clumsy and irregular manner (inability to perform or move the muscle).

(f) **Gait reels** : *i.e.*, to bring down the foot with a thump, or suddenly fall backwards or to fall on one side.

(g) **Knee Jerk**. There is a twitch, following the strike that is slow or vigorous.

(h) **Tremors** are sometimes present.

(i) **Speech** is slow or explosive and violent.

(j) **Vertigo**, *i.e.* a sense of rotation.

(k) **Nystagmus**, *viz.*, jerky oscillations of the two eye balls, fixed on one object

(l) Besides these, disseminated sclerosis, Friedreich's ataxia, and various kinds of corneal opacity may be present.

(4) **Mid-Brain**. The mid-brain connects the pons and the cerebellum with the fore-brain and is the shortest segment of the

brain stem, being not more than 2 cm. in length. It consists of two halves, each of which is further sub-divided into a dorsal and a ventricular part by a layer of grey matter. These contain the visual and auditory reflexes.

The two *thalami* are large masses of grey matter situated on each side of the third ventricle of the fore-brain. Each thalamus is about 4 cm. long and has two ends and two surfaces.

(5) **The Cerebrum.** The cerebrum hemispheres form the largest part of the brain. The hemispheres are separated by a deep cleft named the longitudinal cerebral fissure (also called the *fissure of Roland*), and each possesses a central cavity, called the lateral ventricle, consisting of a central part of three horns, anterior, posterior, and inferior. The thickness of the cerebral cortex, the outer grey matter of the brain, varies from 1.5 to 4.5 cm. The cortical areas are pre-central and pre-frontal areas containing intra-cortical fibres. The whole of the pre-central area or gyrus constitutes the motor area (Refer to Fig. II).

Lesions in cerebrum :

A lesion in the pre-frontal lobe, the seat for the higher mental functions causes mental apathy and loss of initiative, attention and memory. Stool and urine are passed involuntarily. This lack of co-ordination may finally pass into *dementia*.

A lesion in the left 2nd and 3rd frontal gyri may cause aphasia (disorder of speech), agraphia (inability to express in writing) and sometimes *Aphasia* (inability to manipulate objects).

II—INVESTIGATION AND DIAGNOSIS OF LESIONS OF THE NERVOUS SYSTEM

The central nervous system cannot be examined directly by physical means. We can, however, observe the neurological signs. These signs will reveal disturbed neural function. The nature and distribution of these signs will depend upon the anatomical localisation of lesions within the central nervous system. If we know the nature of the disturbance, we can certainly draw some inference regarding the structure of the brain that has been affected, and this

would lead us to the recognition of the site of the lesion. Further information can be obtained by special techniques, such as, radiology, and electro-encephalography. In determining the nature of the disease, we have to depend more upon information from history, general examination, and special investigation than upon the physical examination of the nervous system itself. The general examination should consist of disorders of lungs, heart, blood vessels, blood, liver, and abnormalities of the skin. The special tests consist of ophthalmoscopy, biochemical and biophysical investigations.

Symptoms of nervous disturbances :

The lesions of the nervous system disturb its function in two ways :

(1) The nervous system may either be stimulated to overactivity. (2) or be diminished. There are irritative, or excitatory or paralytic symptoms. Impairment and abolition of one function may cause disturbance of another. For instance, a lesion of the posterior column of the cord will not only cause impairment of position sense, but also create a disorder of motor functions. The following symptoms and signs indicate the nature of the disturbance and its localisation.

(1) **Sudden onset** of symptoms which reach their maximum almost immediately, remain maximal only for a short time. If the patient survives, and then recovers completely or partially, it indicates that the lesion is traumatic or due to a vascular catastrophe.

(2) **Inflammatory lesions**, such as infections, develop rapidly but less acutely than traumatic and vascular catastrophies, and the recovery phase is, generally, also more rapid and complete.

(3) The paroxysmal disorders of function recover after each attack. A history of this type is always suggestive of epilepsy, but migraine and transient vascular attacks should be borne in mind.

(4) Diseases which progress from an ill-defined onset and show no tendency to improve are likely to be degenerative or neoplastic.

(5) A stair-case progression suggests a degenerative disease due to the cumulative effect of minor vascular lesions, e.g., cerebral atherosclerosis.

III—THE MOTOR SYSTEM (EFFERENT IMPULSES)

(See Fig. IV)

Movements, either voluntary or involuntary, are the results of the contraction or controlled relaxation of group of muscles and never of a single muscle. This is effected by contraction of muscles, which act as prime movers and reciprocal relaxation of their antagonists (opposite muscles). The action of the prime movers is provided with a firm base by synergists (co-operative muscles) which stabilise the joints, and by appropriate adjustments of posture. The postural adjustments are largely under the control of the extra-pyramidal-motor system, and the vestibular and spinal reflexes. Voluntary movement require the participation of the precentral gyrus of the cerebral cortex, and the timing and the degree of contraction or relaxation of the muscles of synergy are co-ordinated by the cerebellum, especially when a movement involves more than one segment of a limb. The action of the upper motor neurones from the motor area of the cortex, the extra **Pyramidal** motor system and the cerebellum are brought directly or indirectly to the cells of the anterior horn of spinal grey matter or motor cranial nuclei from which the lower motor neurone runs to a group of muscle fibres. Thus the lower motor neurone is the 'final common path' for all efferent impulses directed at the muscle, and the groups of anterior horn cells may be considered to 'represent a muscle' in the same sense as the cells of the motor cortex 'represent movement'. This distinction is vital to an understanding of the signs and disorders of the motor system.

Upper Motor Neurone :

The fibres arise from the cells in the precentral gyrus (motor area). These initiate movements of different parts of the opposite side of the body, the parts being represented in the following order from below upwards—tongue, face, hand, forearm, arm, trunk, thigh, leg, foot and perineal areas with considerable overlap. The cortical area representing movements of each of these parts is proportional to its functional importance rather than to its anatomical size.

A destructive lesion of indirect corticospinal tract above its intersection (decussation) causes a loss of some voluntary movements of a part of the opposite side of the body, according to the fibres

involved, but automatic associated movements, such as the stretching of the paralysed area when yawning, may persist, and other voluntary or reflex movements using the lower motor neurones and muscles may be preserved. This is the essential difference between the paralysis of upper motor neurones type and that due to lower motor neurone lesion. For the same reason, the stretch reflexes are retained, but these are usually of heightened activity. This indicates that the pyramidal tract normally carries fibres which are inhibitory to the stretch reflex. The pattern of cutaneous protective reflexes also changes, causing the Babinski reflex (movement of the great toe upwards, instead of downwards on stroking the sole of the foot). There are thus two types of disturbance, a negative one due to loss of a particular activity, and a positive one due to the release of lower levels from control. This concept is important in understanding the signs of pyramidal disease. Another type of positive symptoms results from irritant lesions (usually incomplete damage to a nerve cell or its fibre) which cause spontaneous activity of sensory fibers. Spontaneous activity in upper motor neurones causes involuntary movements as in focal epilepsy.

Disorders of the Upper Motor Neurone cause

(1) weakness or paralysis of movement of a part of one side of the body (other movements, using the same muscles, may be spared).

(2) Increase of tone of spastic type. It occurs predominantly in flexor muscles in the upper limbs, and extensor muscles in the lower limbs. It is characterised by an increased resistance to passive movement smoothly sustained.

(3) increase in amplitude of tendon reflexes or clonic movements, may be present.

(4) Loss of the abdominal reflexes.

(5) An extensor plantar response (Babinski's reflex).

(6) No muscle atrophy is there apart from slight wasting which may occur as a result of disuse.

(7) Normal electrical excitability of the involved muscles exists.

Lesions in Cortex :

Localised paralyses affecting one limb only are characteristic. Very large lesions could cause hemiplegia ; sometimes focal epileptic fits occur.

Lesions in the Internal Capsule :

As pyramidal fibres are here closely packed a hemiplegia is likely, with involvement of face, arm and leg on the opposite sides. There may be hemihyperaesthesia and hemianopia from damage to adjacent sensory and visual fibres.

Lesions in Brain-Stem :

Lesions in this area are merely confined to the pyramidal tract. A common form is the affection of one or more cranial nerves on the side of the lesion and pyramidal signs on the side opposite to the lesion.

Lesion in Spinal Cord

The pyramidal pathways may be affected bilaterally. The level of the lesion in the cord is often delineated by accompanying lower motor neurone signs or by sensory disturbance or loss of tendon reflexes, which indicate a segmental localisation.

Lower Motor Neurones :

Axons emerge from the cells of the anterior horn of the spinal cord and from the nuclei of the motor cranial nerves and pass through the anterior nerve roots to enter a mixed peripheral nerve in which they run to the muscles they supply. There are two types, a large fibred efferent neurone, and a small fibred efferent neurone. The term 'lower motor neurone' is usually confined to the large fibred system. Each lower motor neurone has terminal branchings, so that it is distributed to the motor end-plates of a group of muscle fibres. The anterior horn cell, the axon and a group of muscle fibres comprise the motor unit, and each muscle is composed of a large number of such units. The anterior horn cell is activated by impulses from the corticospinal tracts, from the extra-pyramidal tracts, and from some efferent fibres of the posterior nerve root responsible for spinal reflexes. The lower motor neurone (alpha efferent fibre) is

thus an integral part of the spinal reflex arc and is the final common pathway for all motor impulses, involuntary or voluntary, directed to a muscle. Normal nutrition of a muscle appears to depend on its contact with the spinal cord through the lower motor neurone, since, if it is interrupted, the muscle rapidly wastes.

Disorders of the Lower Motor Neurones :

The following signs will be present in the muscles supplied by the particular neurones affected :

(1) Weakness or paralysis of muscles, which affect all movements, whether as prime movers or synergists, voluntary or involuntary, or in reflex contractions,

(2) loss of tone on passive movement (flaccidity) ;

(3) wasting of the affected muscles appears within two or three weeks of an acute lesion (atrophy),

(4) absence of reflexes subserved by the affected neurones. Abdominal and plantar muscles remain normal, unless the neurones to the appropriate muscles are damaged.

(5) Single muscle fibres contract spontaneously, when they are no longer influenced by their associated lower motor neurone (fibrillation).

(6) Contractures of muscles due to replacement by fibrous tissue and 'trophic' changes, such as dryness and cyanosis of the skin, and brittleness of the nails, partly due to impaired circulation exists.

(7) The electrical excitability of the peripheral nerves is altered. If the lower motor neurones are damaged in the cords or nerve roots, the muscles and reflexes affected in the way described above will be those supplied by one or more segments of the spinal cord.

Extra-pyramidal System :

This is a complex neuronal network, extending from the cortex to the medulla, from which emerge descending spinal pathways, whose influence on lower motor neurones modifies voluntary motor activity. In this latticework of fibres, there are areas of grey matter. Some of these are not only a loose collection of nuclei in the brain stem, but also a well-defined nuclei called *basal ganglia*. The diseased state of this system gives rise to impaired voluntary movement alteration of tone, and involuntary movements. (For motor tracts See Fig. IV)

Fig. IV - Descending Motor Tract

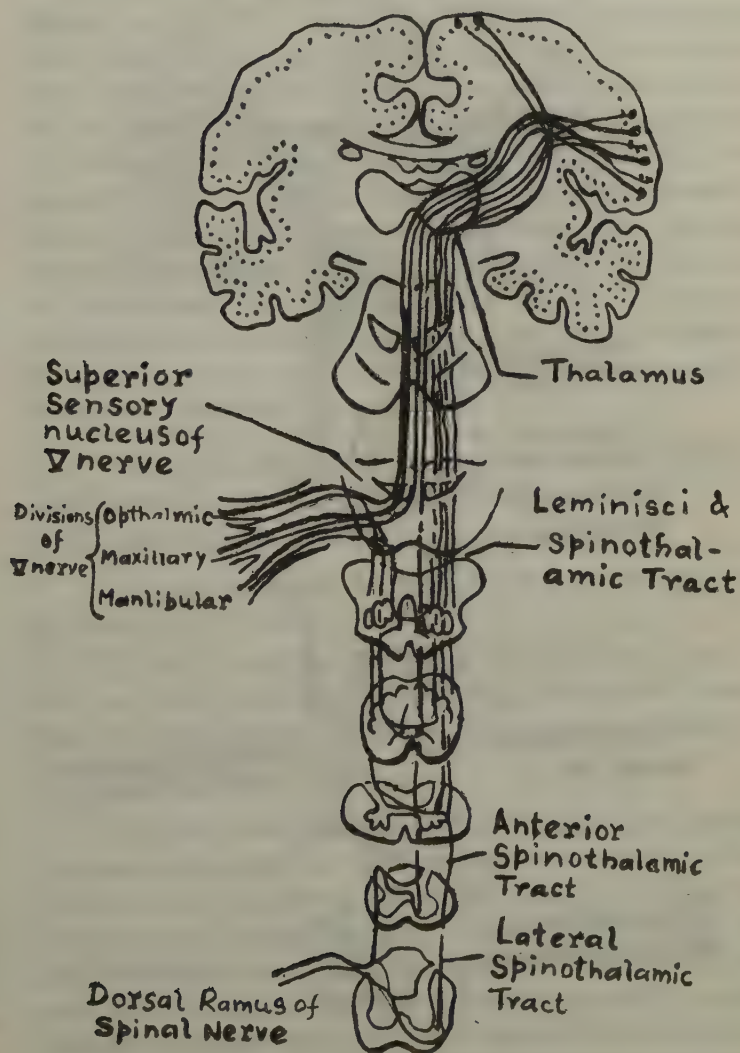
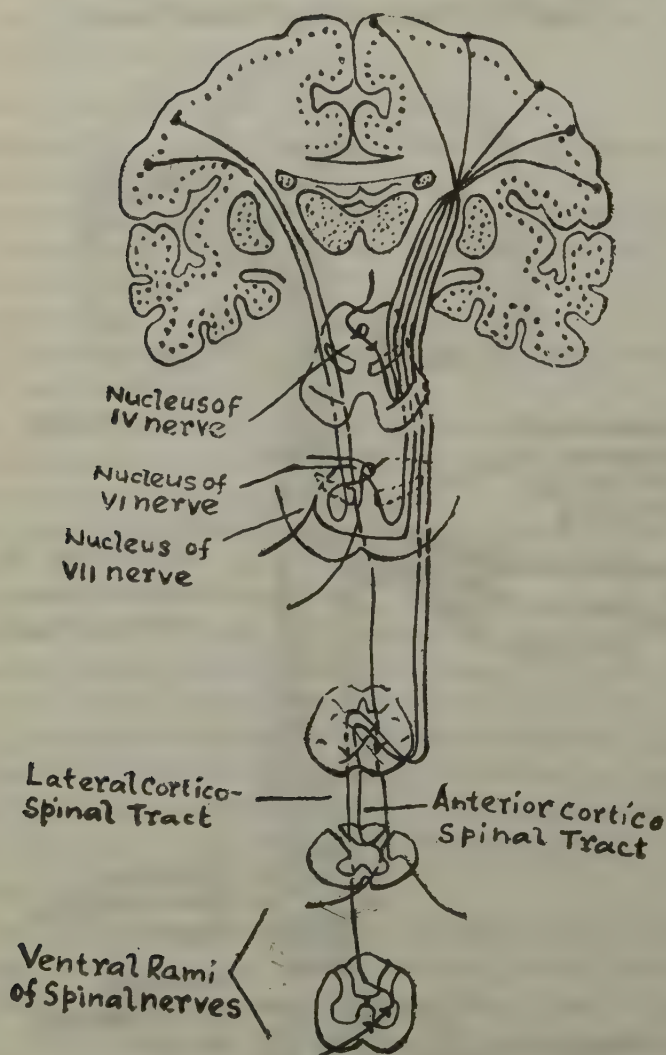


Fig. V- Ascending Sensory Tract



IV—THE SENSORY SYSTEM

The ascending tract (afferent impulses) : (See Fig. V)

All primary or peripheral afferent impulses from the skin, muscles and tendons etc. are conducted to the spinal cord of the afferent nerve fibres. These afferent nerve fibres form peripherally a mixed nerve by joining with the efferent motor nerve fibres coming out of the anterior horn cells. Like the motor system, in the thoracic region, the peripheral distribution of these has a segmental pattern. In the cervical and the lumbosacral regions, several nerves fuse together to form a network. One primary afferent nerve is, thus, connected with several spinal segments. These enter the spinal cord and make the posterior nerve-roots. The fibres, then, get rearranged. A smaller number makes direct way up, but a bigger number terminales in the grey matter of the cord nearby immediately, or slightly higher up and carries impulses of position, movement, size and shape. (Refer to Fig. V)

Sensory impressions not only come from the skin and superficial tissues, but also from muscles, tendons and joints.

Diseases of afferent neurones, therefore, affect

(i) cutaneous superficial sensibility and disturb the perception of touch, pain and heat ; and

(ii) deep sensibility conveyed by the fibres from muscles, tendons, joints and bones by affecting the sense of position and movement and experiencing pain on heavy pressure by fingers, when cutaneous sensibility is lost.

Vibration and the sense of discrimination and equilibrium is conveyed in the posterior column which contains a path of touch also. We have really two sensory paths in each half of the spinal cord that convey sensory impressions finally towards the brain-stem. One path is in the anterior column which carries the sense of touch, pain, and temperature from the opposite half of the body, and the second is in the posterior column that conveys the appreciation of posture, weight, size and shape, and other qualities of sensation from the same side of the body.

A one sided lesion of the spinal cord, therefore, produces a phenomenon, in which pain and sense of temperature are lost on the opposite side of the body ; while on the side of the lesion, there is, in addition to paralysis, a disturbance of the sense of position, movement and loss of recognition of weight, size, shape and vibration. The sense of touch having a double path, is rarely affected by the one-sided lesion.

Examination of cerebro-spinal fluid :

Formation. Cerebro-spinal fluid is formed in the network of the eye-ball (choroid) and two of the four ventricles of the brain, which are generally filled with this fluid. From these ventricles, the fluid flows to the spaces of the intermediate membrane, enveloping the brain and the spinal cord (arachnoid) through an opening in the occipital bone connecting the spinal cord. This fluid in arachnoid space is reabsorbed into the venous blood stream, and thus a steady flow is maintained. During normal health, the quantity of this fluid varies from 100 to 150 ml.

Characteristic properties of the fluid, when normal or diseased :

The physical and general examination of the cerebro-spinal fluid, if withdrawn by a lumbar puncture in a healthy state, will reveal the following properties :

(i) The normal initial pressure of cerebrospinal fluid varies from 100 to 150 mm of water and the flow is at the rate of one to two drops a second. This pressure increases in meningitis and haemorrhage.

(ii) The normal fluid looks crystal clear. In meningitis, it becomes turbid and purulent.

(iii) The normal specific gravity is 1003 to 1008.

(iv) The number of mono-nuclear cells per c. mm. is about 2 to 5. If they increase, it indicates inflammation, meningitis, myelitis, cerebro-syphilis and encephalitis.

(v) Bacteria tests may point to tuberculous and other organisms.

(vi) The total protein in the fluid is 20 to 40 mg. per 100 ml. Protein increases in all inflammatory conditions of meningitis, encephalitis, myelitis, syphilis of the nervous system, in new growths, and in infective neuritis.

(vii) The chlorides in the normal fluid is 700 to 750 mg. per 100 ml. This falls in purulent meningitis and tuberculous meningitis.

(viii) Glucose in the normal fluid is 50 to 80 mg. per 100 ml. It decreases in meningococcal meningitis, tuberculous meningitis ; but it increases in high blood pressure and diabetes mellitus.

V—COMMON CEREBRAL SYMPTOMS and THEIR TREATMENT HEADACHE

Definition :

Headache is a nervous complaint and is characterised by various types of pain or discomfort in different parts of the head.

Etiology :

Its causes are many, and so are its modes of onset, duration, intensity, or other conditions relating to it. These causes may be classified as follows :

(i) Local Causes

(a) Frontal sinusitis.

(b) Head injury leading to inflammation, or deformity of a bone (osteitis).

(c) Rheumatism of the muscles of the neck (cervical fibrositis) and inflammation of one or more of the 33 bones of the vertebral spinal column (spondylitis).

(ii) Referred Pain

(a) In the nose, from coryza, or growths, or septum structural defects.

(b) In the eye, from weak sight, iritis, or glaucoma.

(c) In teeth, from inflammation (Odontalgia) ; or in the ear, (otitis).

(d) From Utero-ovarian reflex.

(iii) Nervous Causes :

(a) Neuralgias produce a wide-spread pain, limited to the supraorbital region.

(b) Cerebral disorders, as meningitis, syphilis, growths, abscess, high and low blood pressure, etc.

(iv) **Constitutional Causes :**

(a) Chronic nephritis, uraemia, too high blood pressure, polycythaemia ; severe anaemia, congestive heart failure.

(b) After-effects of epilepsy, hysteria and migraine.

(c) Sea or air-sickness, sudden reduction or depression in atmospheric pressure in air flights or sea voyage, *caissons disease*, hypoxaemia (diminished amount of oxygen in blood) ; gastritis ; chronic constipation ; chronic hepatitis, gout ; lead poisoning, acidosis and alkalosis.

(d) Acute fevers, as malaria, enteric fever, small-pox, scarlet fever, typhus, yellow fever, influenza, heat stroke.

Treatment :

General : (1) In inflammatory congestive headache, place crust of bread soaked in vinegar on the temples.

(2) Application of ice on the head is not only bad but dangerous.

Curative :

(1) **Aconite.** Congestive headaches, if the pain is very severe with a burning sensation over the whole head, particularly the forehead ; face red and bloated, eyes red ; when the pain is accompanied by incoherent talking or raving.

(2) **Belladonna.** It is indicated in congestive headache, when the pain is deep-seated, is oppressive and heavy, and the face is pale and haggard with unconsciousness, incoherent talking and murmuring, with drowsiness. It is also applicable in other types of headache, the main symptoms being that the patient cannot lie down, nor can he bear light, noise, jarring or draught of air.

(3) **Glonoine.** For throbbing and congestive headaches which come suddenly, and the blood is felt rising up into the head with severe heat and pain (a feeling of tight band across the forehead). Sun headaches > from uncovering the head. The headache is aggravated from bending the head backward and lying down.

(4) **Gelsemium.** For congestive, catarrhal and nervous headaches ; the characteristic symptom being a feeling of band

around the head just above the ears. Mostly this headache accompanied with vision troubles *e.g.* dim sight, squinting. The Gelsemium headache is dull and dragging and is relieved by copious urination and sleep. The headache commences with blindness in the occiput or the nape of the neck, and passes over the head and settles in the eye. It is also indicated in headaches due to tobacco smoking.

(5) **Melilotus**. A good remedy for congestive headache due to sexual irritation. The pains are so bursting and explosive that they drive the patient mad. The eyes are blood-shot and the headache recurs every after-noon. The headache may result in nose-bleed, and has an undulating sensation in the brain.

(6) **Allium Cepa**. Catarrhal headache or mostly in forehead, at the back of head, worse in warm room and towards evening or at night. Headache ceases during menses and returns with the flow. The eyes are watery.

(7) **Kali Bich**. Headache, caused by riding in cold wind, with stitches in temples and aching in occiput. The headache commences with blindness, but it disappears after the headache settles down in small-spots.

(8) **Arsenicum**. Catarrhal headache, relieved by cold, other symptoms being restlessness, acrid discharge from the nose, throbbing in the forehead, nausea and fulness at the back of the head.

(9) **Nux. Vom**. When coryza flows freely by day and stops at night ; or headache all over the head from excessive use of alcohol, tobacco, digestive disturbances, constipation, and liver troubles ; the headache is either situated on one of the eyes usually the left or the back of the head and may be attended with nausea and retching ; stooping and coughing aggravate the headache and nothing relieves it ; gastric headache from over-drinking.

(10) **Mercurius**. Catarrhal ; gastric headaches when the head seems full and bursting, as if tied by a bandage, tearing, boring, shooting and burning pains, worse at night. It is mostly due to either constipation or suppression of cold.

(11) **Pulsatilla**. Catarrhal and gastric headache due to overwork or rich diet or cold, better in open air. It is a better

remedy when the pains are one-sided with shivering, no thirst, and the patient is agitated and inclined to cry.

(12) **Sticta Pul.** Catarrhal headache before coryza appears, with burning eyes and soreness in eye-ball. The headache is of a dull character with pressure on forehead and root of the nose.

(13) **Argentum Nitricum.** Nervous and gastric headaches ; one-sided attacks due to emotional disturbances and great mental exertion. Head appears enormously large. Sharp, nail-like pains which disappear on tying up the head tightly or on extreme pressure.

(14) **Bryonia.** Congestive, catarrhal and gastric headaches when eyes water and burn ; the head feels as if pressed together from both sides, worse on stooping, as if everything would fall out of the forehead ; or sick headache of the right side with bilious vomiting, worse from all movements even of the eyeballs. It is generally due to constipation or suppressed catarrh.

(15) **Ipecac.** Bilious headache accompanied by nausea, the lobes of the skull feel bruised or crushed, if there is vomiting and retching.

(16) **Iris. V.** Gastric or bilious headaches, mostly right-sided. The throbbing pains are sharp and, when at their height, vomiting occurs which is usually bitter or sour, worse by violent motion, cold air and coughing, better by moderate exercise in the open air. Headache from eating sweets is relieved by this remedy.

(17) **Sanguinaria.** Congestive and sick headaches ; (sun headache) ; pains begin in the occiput and spread upwards and then settle on the right eye. They increase in severity, until there is vomiting of blood or bile. Sometimes this relieves the pain. It is specially suitable for women who menstruate too freely.

(18) **Chamomilla.** It is the best remedy for rheumatic or gouty headache which is throbbing in half of the brain with inclination to bend backwards ; hot, clammy, sweat on forehead and scalp, (if the patient is peevish and angry and changes his position too often, give *Nux. Vom.* ; if he groans or screams and lies still, give *Bell.* ; or *Puls.*, if he is chilly and inclined to weep.)

(19) **Guaiacum**. Gouty and rheumatic pains in the head and face extending to neck ; tearing pains on the skull, worse wet weather.

(20) **Rhus Tox**. Rheumatic pains in the head in back part, painful to touch.

(21) **Calc. Phos**. For the headache of anaemic girls and boys who are exhausted.

(22) **China**. Throbbing headache due to anaemia or great loss of blood.

(23) **Ferrum Phos**. Anaemic headache with rush of blood to the head and throbbing sensation, better by cold applications.

(24) **Nat. Mur**. Chronic headache, preceded by blindness ; the brain aches, as if thousand hammers were beating the skull, worse from moving the head or eye-balls.

(25) **Silicea**. Chronic headache from fasting, better from wrapping or tying up so as to give warmth to the head.

(26) **Cimicifuga**. Neuralgic headache of students and those who are exhausted by fatigue with the sensation as if the top of the head would fly off. The brain seems to move in the form of waves, better by bending to some extent. This headache is either a reflex one or dependent on some uterine irritation. The patient seems to go crazy.

(27) **Spigelia**. Neuralgic pains in the head which follow the course of the sun beginning in the morning and reaching at its height at noon and subsiding at sunset (sun headache), begins in the occiput, spreads upwards and settles on the left eye. Noise and jarring of the bed aggravate.

(28) **Chininum Sulph**. Supra orbital neuralgic headache with dim vision.

(29) **Chionanthus**. Sick or bilious headache with pains over the eye-balls, attended by vomiting of green-looking matter and pain in the liver.

(30) **Paullinia and Zinc Met** are also useful in sick or neuralgic headache.

MIGRAINE

(Hemicrania or Sick Headaches)

Definition :

This is a common disorder with recurring intense periodic headache which often develops on waking in the morning and which, while often unilateral, may be bifrontal, occipital and general. They are often associated with nausea and vomiting (sick headache) also with disturbances of vision and with giddiness.

Less common are sensory changes, attacks of paraplegia or monoplegia, of aphasia and of ophthalmoplegia. Some of these accompany the headaches, but others occur apart and may cause difficulty in diagnosis.

Etiology :

Migraine may start in early childhood, but commonly appears round puberty. The immediate cause of the attack is a paroxysmal variation in the calibre of the cranial blood vessels, either-spasm or dilatation or the one followed by the other. The dilatation which causes the headache is associated with oedematous swelling of the vessel wall in either carotid or basilar arterial systems. When the spasm is in the territory of the internal carotid system, hemiplegia, monoplegia, sensory changes and aphasia may happen. The spasm of the basilar system causes nausea, vomiting and vertigo and majority of visual disturbance. When there is dilatation of the external carotid artery, temporal and frontal headaches occur, sometimes with intense pain in the eye or the face (Neuralgia migraine).

Precipitous factors are numerous and may be specific. On the psychological level, fatigue, anxiety and frustration play an important part. On the physical side, over-exertion and fatigue, indiscretion or irregularities of food, exposures to excessive light or noise, prolonged eye strain cause the attack. Women may have attacks during menstruation, but they remain free during pregnancy.

Symptoms and Signs :

(i) The attack commences commonly on waking in the morning in the event of raising his head from the pillow with a sense of giddiness, ocular confusion and nausea, as is felt in sea-sickness.

(ii) Sometimes vomiting continues for hours with great prostration, sweating and coldness of the extremities.

(iii) Continued headache follows the disturbances of vision and vomiting for 10 to 30 minutes.

(iv) Light, noise and movement aggravate the pain of the patient who seeks refuge in a darkened room. After remaining in this condition for hours, the patient falls asleep, and wakes next day fresh and well.

(v) The attacks do not always come in the morning. These may come at any time during the day or night.

(vi) Aphasia attacks may consist of confused speech, word-blindness or complete aphasia.

(vii) Sensory auras and ophthalmoplegia are rare.

Dignosis :

This is based on the periodic nature of the disturbance, the family history and the absence of abnormal physical signs. The characteristic clinical picture is the long history, the familial incidence and the common association of headache with vomiting and various sensory disturbances. Rare cases of migraine are caused by a cerebral aneurysm or angioma. In these cases migraine is unilateral and usually associated with focal neurological signs.

Treatment :

Dietary. Some authorities recommend restriction of animal fat and eggs, avoidance of physical over-exertion, fatigue and excessive worry during remission.

Curative :

The following remedies which have already been described under 'Headache' are recommended :

- (1) Bell
- (2) Cocculus
- (3) Gelsemium
- (4) Iris
- (5) Nux. Vom.

- (6) *Spigelia*
- (7) *Glonoine*
- (8) *Ipecac*
- (9) *Silicea*
- (10) *Pulsatilla*. Others are detailed below :

(1) **Chionanthus**. Sick headache ; pain in forehead over eyes ; eye-balls painful ; vomiting of bitter, green-looking matter ; pain in liver ; cramps in abdomen.

(2) **Epiphegus**. Headache brought on by over-exertion, shopping excitement, etc. ; pain worse on left side pressing on temple ; constant desire to expectorate with a viscid saliva ; pains relieved by rest and lying down.

(3) **Paullinia**. This is also useful in sick headaches involving the whole head with nausea and vomiting.

(4) **Sanguinaria**. Genuine sick headache with the following indications :

- (i) Subjects usually are women who menstruate too freely.
- (ii) The pain begins in the morning and in the occiput and after coming up over the head, settles on the right eye.
- (iii) Pain increases till there is vomiting of bile and blood, followed by relief occasionally.
- (iv) Noise and light are unbearable, but sleep or lying down relieves.
- (v) With intensity of pain, the patient sometimes bores her head into the pillow.
- (vi) Sometimes profuse urination relieves pain.

(5) **Naja**. Pain in the left temple and left orbital region, extending to occiput, with nausea and vomiting.

(6) **Sepia**. Migraine which has existed for years in women with profuse leucorrhoea. The seat of pain is generally confined to the left eye and the left temple extending backwards.

COMA

Definition :

Loss of consciousness is graded into arbitrary stages of *drowsiness*, *stupor* and *coma*, as consciousness depends on the degree of loss of activity. In conditions of depression and mutinism, the patient is not out of touch with the surroundings, as his reflexes remain intact. So *Coma* is a state of disorder when there is a complete loss of reflex activity. Probably stertorous activity is a sign which is a significant symptom to indicate the presence of coma.

Causes :

Coma may be associated with :

- (1) acute or chronic disorders of the upper brain stem.,
- (2) head injury (concussion of brain) the face is pale and reflexes absent or diminished,
- (3) apoplexy, hemiplegia, bleeding, hypertension, embolism,
- (4) meningitis,
- (5) encephalitis,
- (6) cerebral tumour,
- (7) when body temperature is lower than 86°F,
- (8) heat exposure,
- (9) diabetes,
- (10) uraemia,
- (11) poisoning,
- (12) hepatic failure, and
- (13) retention of carbon dioxide.

Features :

(1) In coma, pupils are insensitive to light, and the patient is unable to swallow fluids, when put into his mouth.

(2) Asymmetry of the mouth and lower face which puffs in and out with respiration.

(3) Absolute flaccidity of the limbs.

Diagnosis :

This should be carefully investigated by getting a full history of the case, laboratory examination of gastric contents, urine, blood etc. for detecting poison, extent of sugar and blood parasites respectively. An examination of cerebrospinal fluids will also greatly help the diagnosis. If coma is of a sudden onset, the commonest cause is cerebral haemorrhage or apoplexy.

Treatment :

Coma should be treated according to symptoms which may also indicate the disease of the patient. Some of the remedies are mentioned here :

- (1) Opium
- (2) Pilocarpus
- (3) Belladonna
- (4) Helleborus
- (5) Hyoscyamus
- (6) Comphor
- (7) Acid Phos.
- (8) Rhus Tox.
- (9) Apis
- (10) Zinc Phos.

CONVULSIONS (ADULTS)**Definition :**

A convulsion is a paroxysmal involuntary contraction of muscles, resulting from abnormal cerebral stimulation from many causes. They occur with or without loss of consciousness and are of two kinds :

(1) Clonic convulsions which show alternative contraction and relaxation.

(2) Tonic convulsions which reveal sustained rigid contraction.

Etiology :

Some convulsions are spontaneous and without any obvious cause. They may be called essential seizures. Another group includes

minor epilepsy (dealt in chapter XI), Tetanus or Lockjaw (a disease in which a patient develops spasms and rigidity of muscles) ; eclampsia (a severe manifestation of toxæmia of pregnancy with fits and coma). Other causes may be metabolic, toxic, cardiovascular and local.

INFANTILE CONVULSIONS

Etiology :

These convulsions occur :

(i) in the first three months due to birth injuries, meningitis, or congenital syphilis.

(ii) from four months to two years due to rickets, tetanus, congenital syphilis and other cerebral diseases, including acute infections in pneumonia, whooping cough, small-pox, diphtheria, malaria, scarlet fever, bacillary dysentery, nephritis, teething, gastro-intestinal disorders, and worm disease,

(iii) after two years due to the above diseases, epilepsy and hysteria (girls). The commonest causes, however, are rickets, gastro-intestinal disorders and acute infective diseases, such as, bronchopneumonia, measles, etc.

Treatment :

(1) **Belladonna.** Flushed face, prominent throbbing between the cranial bones, when the child starts suddenly when asleep or stares about wildly ; involuntary discharge of urine after the return of consciousness.

(2) **China.** Convulsions due to worms or in those who are in the habit of wetting the bed, spasms of chest followed by rigidity of limbs or whole body.

(3) **Aethusa.** Convulsions with gastro-intestinal disorder and great pain and anguish ; intolerance of milk.

(4) **Chamomilla.** Convulsions during teething in fretful irritable children with green watery stools. Convulsions with jerking of limbs, twitching of muscles of face and eyelids, with constant motion of head from side to side, followed by drowsiness, half-closed eyes and unconsciousness, constant roaring and craving for drinks.

(5) **Cuprum M.** Convulsions in whooping cough paroxysms.

(6) **Nux. Vom.** Convulsions from eating indigestible fruit.

(7) **Ignatia.** It is the chief remedy in convulsions of children, when the cause is unknown and the following symptoms are present :

(i) Sudden and violent starting from light sleep with loud screaming and trembling of the whole body.

(ii) When there is spasm of a single muscle.

(iii) When the fits return every day at the same hour or every third day, followed by fever and perspiration

(8) **Coffea.** Useful in weak and nervous children, when spasm is the cause.

(9) **Ipecac.** When fits are accompanied by vomiting, retching and nausea or diarrhoea.

(10) **Mercurius.** Spasms caused by worms, with distention and hardness of abdomen and fever with great weakness after the spasm. It may precede or follow *Cina*.

(11) **Opium.** Convulsions caused by fright with trembling of the whole body, tossing of the limbs and loud screaming during the fits, or when the convulsions are suppressed and there is loud heavy breathing with distention of abdomen.

(12) **Hyoscyamus.** Convulsions caused by fright with twitching of muscles of the face and foaming from the mouth.

(13) **Rheum.** If convulsions are accompanied by twitching and jerking in the thighs and groins.

(14) **Stramonium.** Sudden convulsions from fright or when they occur in fevers or from suppressed eruptions with involuntary stool and urine.

(15) **Sulphur :** specially of use in convulsions due to suppression of chronic eruptions.

INSOMNIA

(Sleeplessness)

Definition :

Insomnia is a disorder from which one, though sleepy, is unable to sleep, or remain abnormally awake at night.

Causes :

The causes for sleeplessness may be :—

- (1) severe pain,
- (2) difficulty in breathing,
- (3) old age,
- (4) fever,
- (5) anxiety, fear or terror,
- (6) fatigue or exhaustion, physical or mental,
- (7) nervous irritability and excitement,
- (8) excessive worry or agitation of the body and mind,
- (9) depression,
- (10) cerebral disease.

Treatment :

- (1) **Chamomilla**. Sleeplessness due to pain.
- (2) **Ignatia**. Sleeplessness from depressing news.
- (3) **Gelsemium**. Sleeplessness from emotional disturbances.
- (4) **Passiflora** will induce sleep, when mental irritation or pain is the cause.
- (5) **Phosphorus**. Sleeplessness following excessive mental work.
- (6) **Ambra Grisea**. Sleeplessness is due to worry and business troubles. *Coffea* is to be used where there is crowding of ideas, or where there is excitement of any kind—good news, joys or night-watching, also when it is caused by unsuitable diet.
- (7) **Sulphur** : has 'cat-nap' sleep, in which the patient wakes frequently, or the patient sleeps all day and is sleepless at night.
- (8) **Cinchona** : has sleeplessness from exhausting diseases. The mind indulges in castle building.
- (9) **Hyoscyamus** : has sleeplessness from nervous excitement with bewildering ideas and images.

(10) **Belladonna** : has sleeplessness due to congestion of brain, when sleep is interrupted by talking, startings, muscular jerkings and spasmodic motions.

(11) **Cuprum, Zincum and Stramonium** are indicated, when the patient is aroused from sleep frightened.

(12) **Nux. Vom.** : has also awakening from anxiety and frightful dreams.

(13) **Camphor** : is useful, when sleep is disturbed by continued use of tea or coffee, or in insomnias of locomotor ataxia, or epilepsy.

(14) **Arnica, Gelsemium and Cimicifuga** are to be given in sleeplessness from over-exertion.

VI—DISORDERS OF CRANIAL NERVES

The cranial nerves are frequently involved in general disease of the nervous system. In addition, there are specific conditions affecting a single cranial nerve. It is convenient for descriptive purposes to study consecutively the *manifestations of lesions of the cranial nerves* and their nuclei.

THE OLFACTORY NERVE

(First cranial nerve)

The olfactory nerve arises from olfactory receptors in the nasal mucosae. The fine first order fibres pass through the cribriform plate (perforated plate) in the floor of the anterior fossa of the skull. The synapse in the olfactory bulb and the second order neurones run into the olfactory area of the brain and higher autonomic centres of the olfactory tract which lies under the orbital surface of the frontal lobe. The tumour of the frontal lobe may compress it and cause loss of smell (anosmia) on one side of the nose. The fragile fibres passing through the perforated plate are readily damaged by head injuries. The commonest cause of loss of smell is usually a nasal disease and it is not often of diagnostic value in disease or damage of the central nervous system.

Treatment : (i) **Anosmia** (ii) **Polypi nasal.**

Anosmia : (1) **Alumina** (diminished smell).

- (2) **Anacardium** (Smell perverted).
- (3) **Hepar Sulph** (Smell like old cheese).
- (4) **Kali Bich.** (Foetid smell).
- (5) **Mag. Mur.** (Loss of smell and taste following catarrh).
- (6) **Nat. Mur** (Loss of smell and taste).
- (7) **Pulsatilla** (Loss of smell with dryness and stoppage of right nostril).

(ii) **Polypi, nasal :**

- (1) **Calc. Carb** (Swelling at the root of the nose with offensive odour).
- (2) **Allium Cepa.** (Feeling at the root of nose ; Polypus).
- (3) **Sang. Nit.** (Dry burning nostrils with pressure at root of nose ; watery discharge).
- (4) **Sanguinaria.** (Nasal polypus with dry and congested membrane).
- (5) **Teucrium.** (Mucous polypus).
- (6) **Thuja.** (Painful pressure at root of nose).

THE OPTIC NERVE

(Second cranial nerve)

The optic nerve head or the disc can be seen with the ophthalmoscope and is the only part of the central nervous system which can be directly observed. Congenital abnormalities of the optic disc are fairly common, the most usual being the presence of opaque nerve fibres. They are usually limited to a small area but may surround the disc.

The common acquired disorders of the disc are :

- (1) Papilloedema due to raised pressure.
- (2) *Retrobulbar neuritis* which is the inflammation of the nerve head.
- (3) *Optic atrophy.*

Papilloedema. Papilloedema is the inflammation of the optic disc or papilla. This is almost invariably due to raised intracranial pressure, as in some cases of cerebral tumours, abscesses and meningitis. At first, the disc veins and those of the retina become distended and congested, making the disc redder than normal. As the redness increases, the disc margins become more blurred and haemorrhages and exudates may appear. In chronic form, the disc assumes a grayish quality.

In early stages, the vision is not much disturbed, but when inflammation is severe, the vision is blurred; severe disturbances take place which are associated with bending or straining.

If the intracranial pressure is not removed, the sight begins to fail and the disc becomes pale and atrophic.

Retrobulbar neuritis. This is also an inflammatory process of the optic nerve. It is due to the demyelination (myelin is the white fatty matter of a nerve) of the optic nerve, the appearance resembling papilloedema but the changes usually are less severe. When the demyelination is just behind the eyeball, there is redness and diffuse swelling. In marked contrast to papilloedema, the vision failure is early and severe and central vision is affected first. There is often pain on movement of the ball and also aching above and behind the eye. The pupil is usually dilated and reacts to light for a short time. Recovery is usual and it may be complete.

Disseminated sclerosis is the commonest cause of acute retrobulbar neuritis, it occurs from toxic causes. Though the assumption is that it is caused by demyelination of the optic nerve, there may be less severe causes also, such as, tobacco smoking, methanol, arsenical compounds, lead and quinine.

A severe form of demyelination called *neuromyelitis optica* may cause permanent blindness through bilateral involvement of the nerve.

Optic Atrophy. This is a condition in which there is loss of fibre and flatness of the disc with marked contrast between it and the surrounding retina. Optic atrophy is called primary or consecutive, depending upon whether it was the first change seen or whether it had followed papilloedema or retrobulbar neuritis.

Causes. Primary optic atrophy is caused by :

- (1) Injury to the retina or optic nerve.
- (2) Demyelination in the optic tract.
- (3) Hereditary or familial diseases with primary degeneration or of neurones, especially the hereditary ataxias.
- (4) Diseases of the optic chiasma and optic nerve, and pressure upon them by tumours of the pituitary gland, glioma of the optic nerve, aneurysms or bony injuries involving the optic nerve.
- (5) Chemicals, such as, quinine and phosphate etc.
- (6) Massive haemorrhage or severe anaemia, causing ischaemia to the optic nerve.
- (7) Diabetes mellitus, arterial disease with or without thrombosis of the central artery of the retina.

Consecutive Atrophy follows :

- (1) Severe papilloedema owing to pressure upon the optic nerve fibres by oedema at first and cicatrization subsequently.
- (2) The late stages of the neuroretinitis following arterial disease and hypertension.

Treatment :

(i) **Inflammation (Optic Neuritis) :**

- (1) **Apis.** Pain around orbits ; serous optic disc, exudation ; oedema and sharp pains ; suppurative inflammation of eyes.
- (2) **Carboneum Sulph.** Cloudiness and atrophy of optic neuritis advancing towards atrophy.
- (3) **Mer. Cor.** Pain behind eyeballs, as if forced out ; neuritis descending.
- (4) **Gelsemium.** Neuritis choked, alcoholic neuritis.
- (5) **Hypericum.** Optic neuritis after severe injury.
- (6) **Belladonna.** Eyes congested ; pupils dilated ; fiery appearance ; swollen and protruding.

(ii) **Optic Atrophy.** The remedies are :

- (1) Arg. Nit.
- (2) Phos.
- (3) Carboneum Sulph.
- (4) Strychninum Nit.

THE OCULOMOTOR NERVES

(The 3rd, the 4th & 6th cranial nerves)

The third nerve supplies all the external ocular muscles except for the internal rectus (fourth) and the superior oblique (sixth). A complete third nerve paralysis gives a dilated and an active pupil; *complete ptosis, diplopia*, external deviation of the eye (*divergent strabismus*) on account of the action of the unopposed rectus muscle and a defective ocular movement in the direction in which the muscles supplied by the third nerve move the eye. The patient complains of double vision (*diplopia*). Complete paralysis of the third nerve paralyses the constrictor of the pupil also. So it is large and fails to react to light by the direct path or on convergence.

Paralysis of the 4th nerve (trochlear) gives squint, but not a clear one. The sixth nerve paralysis causes a convergent squint and diplopia.

The oculomotor paralysis may be complete or partial. In some cases the lesion is in the brain stem or within the cranium in the neighbourhood of sphenoid fissure. The squint may be paralytic or non-paralytic.

Treatment :

(i) **Strabismus :**

- (1) Alumina (Loss of power).
- (2) Alumen (Internal squint of the eye).
- (3) Cyclamen (Convergent squint).
- (4) Gelsemium (Squint of either eye).
- (5) Cina and Spigelia (Due to worms).
- (6) Morphinum (Divergent squint).

(ii) **Diplopia** (Double vision) :

- (1) **Cylamen** (Flickering of various objects).
- (2) **Belladonna** (Diplopia, squinting).
- (3) **Hyoscyamus** (Objects have coloured borders).
- (4) **Nitric Acid** (Double vision with photophobia and sharp sticking pains).

(iii) Ptosis :

- (1) **Causticum** (vision impaired).
- (2) **Gelsemium** (eyelids heavy).
- (3) **Conium** (Paralysis of ocular muscles).
- (4) **Morphinum** (Pupils contracted, paralysis of rectus muscles).

THE TRIGEMINAL NERVE**(The fifth nerve)**

As the fifth nerve is mainly a sensory one, the most common symptom which arises, when it is involved in disease, is pain. It has its extensive sensory distribution through its three branches, the ophthalmic, the maxillary and the mandibular divisions. It supplies to the skin of the face (excluding the angles of the jaw), the cornea, the sinuses, the mucous membranes of the nose, the teeth, the tympanic membrane, and common sensations (but not taste) to the anterior two-thirds of the tongue.

The motor division of the nerve innervates the temporal masseter and ptery-goid muscles which are responsible for the closure and opening of the jaws. The nerve fibres and nuclei may be involved within the brain stem by conditions, such as, syringobulbia, thrombotic lesions and the peripheral nerve by localised pressure, such as occurs in cerebral aneurysms in the region of the cavernous sinuses and by tumours of the cerebellopontine angle. The ganglion of the nerve may also be involved in herpes zoster giving rise to characteristic shingles lesion over the skin of face and causing ulceration of the cornea when the ophthalmic division is involved.

DISEASES OF THE FIFTH NERVE**Trigeminal neuralgia****(The Douloureux)****Definition :**

This is a disorder confined to paroxysms of intense pain in the distribution of the trigeminal nerve only, without sensory loss or evidence of organic disease of the nerve.

Etiology :

The cause of trigeminal neuralgia in most cases is unknown. Nearly all the patients are over 50 years of age. Women are more often affected. A number of cases in younger people are due to disseminated sclerosis, and there is also a form different from the chronic trigeminal neuralgia of elderly people, which occurs temporarily in young subjects from exposure to cold, and may recur.

Symptoms :

(1) The pain generally starts suddenly from a small area and spreads along the course of the nerve, the tongue and the teeth being more commonly involved. The starting spot is supra-orbital notch, eyeball, or the nose and then passes on the roof of the mouth, and thence to the tongue.

(2) The character of pain is sharp and paroxysmal, or dull and continuous.

(3) Seasonal recurrence and relapses particularly in spring are seen. A cold wind blowing on the face, washing the face, chewing or even talking is enough to bring on the attack.

Signs :

(1) The flushing and sweating of the affected area.

(2) Salivation and lachrymation and nasal discharge.

(3) Furring of the tongue.

(4) Twitching of the facial muscles.

Prognosis :

The remissions are common, but spontaneous recovery is rare.

Diagnosis :

The quality of pain in trigeminal is characteristic. If the pain is brought on by chewing, talking and washing the face, it is certainly due to trigeminal neuralgia. Pain which is constant or of a continuous character is not due to neuralgia. The local painful neurosis and psychogenic pains are continuous and spread to the other side of the face, a feature which does not occur in trigeminal neuralgia. In *glossopharyngeal neuralgia*, the pain, although similar to trigeminal neuralgia, is induced by the movement of swallowing and is felt in the ear or the throat.

Treatment :

(1) **Aconite.** This has a prominent action on the trigeminal nerve, producing painful sensations. The special features are the continuous tingling, great excitement and intolerance of pain. Bahr recommends higher potencies in *Neuralgia*.

(2) **Cimicifuga.** Supra-orbital neuralgia of a reflex type, dependent upon uterine disturbances.

(3) **Belladonna.** Infra-orbital neuralgia, accompanied with tears and saliva ; violent cutting pains coming towards evening, most violent at midnight. Paroxysms may be of long duration ; the pains radiate to temples, ears and nape ; and are worse by noise, motion, jar and chewing.

(4) **Kalmia.** Neuralgia brought on by exposure to cold, involving the teeth of the upper jaw ; tearing pains, worse from worry or mental excitement, worse on right side. It has cured some of the long-lasting cases. The tincture is recommended. The neuralgia is not confined to the facial nerve, but extends to neck and shoulders.

(5) **Spigelia.** The location of pain is in the nerves of the forehead, orbits and teeth of upper jaw. There is often a sensation, as if the eye were too large, burning, sticking pains, worse from change of weather. The pains may be attended with anxiety, restlessness or preceded by palpitation.

(6) **Arsenic.** If neuralgia is complicated with malaria or is purely nervous.

(7) **Chelidonium.** Neuralgic pains, reflex from liver troubles.

() **Kali Bich or Nux. Vom.** If pains are reflex from gastric troubles.

(9) **Colocynth.** For violent tearing and darting pains which occupy the face and are aggravated by the slightest touch. The gums are relieved by firm pressure, warmth and rest.

(10) **Staphysagria.** For tearing pains in the cheek bones, chiefly on the left side.

(11) **Hepar Sulph.** For tearing pains in bones, worse when touched.

(12) **Hyoscyamus**. Pressing pains in the jaw bone (for violent pains, mostly in bones, give Belladonna).

(13) **Pulsatilla**. For jerking and shooting pains.

(14) **Capsicum**. For pains worse in the evening.

THE FACIAL NERVE

(The seventh cranial nerve)

The seventh nerve is entirely motor. It innervates the muscles of expression of the face and through its chorda tympani branch, carries taste fibres from the anterior two-thirds of the tongue.

The nerve is vulnerable as it takes a long intracranial course to the facial canal. Like the trigeminal nerve it is involved in tumours of the eighth nerve, and used to be commonly affected with the middle-ear disease and it is also likely to be involved in herpes in geniculate ganglion. Swelling and consequent compression of the nerve just within the stylo-mastoid foramen is thought to be the cause of the common *Bell's palsy*. When the nerve is affected within the pons or just outside it, the sixth nerve is likely to be affected also, so that there is a failure of abduction of the eye on the affected side. When the lesion is near the attic of the ear, the taste is lost on the affected side.

The distinction between facial paralysis caused by damage to seventh nerve and that caused by the disorder of the upper motor neurone may be difficult. It can be made by recognition of the fact that the muscles in the upper part of the face have a bilateral innervation from the hemispheres, so that the movements of the forehead are relatively spared, compared with those of the mouth.

DISEASES OF THE SEVENTH NERVE

BELL'S PALSY

(Facial paralysis)

Definition :

This is the name given to paralysis of the facial nerve which comes on quickly and is not associated with any other lesion.

Etiology :

This condition occurs in both sexes at any age, the commonest age being between 20 and 50. The cause is unknown, but is believed to be an inflammatory lesion in the stylo-mastoid canal, the paralysis being due to compression of the nerve fibres by oedema. A cold draught blowing on the ear may be a precipitating factor.

Symptoms :

(1) The onset is rapid with pain of a neuralgic kind just below the ear behind the mastoid process or referred to the occipital region, but this pain lasts for a few days and may be mild or occasionally absent.

(2) A little swelling may be seen on the bone of the jaw.

(3) The face first feels stiff on movement, then the paralysis comes on quickly and the face is drawn over to the opposite side.

(4) The paralysed side is completely immovable.

(5) There is difficulty in articulation and escape of fluids on drinking.

(6) Taste is usually lost.

(7) When bilateral palsy is seen, other causes, such as, polyneuritis, should be considered.

Diagnosis :

Pain is not due to trigeminal neuralgia, unless

(1) it is brought on by eating, talking or washing the face, or if

(2) it is constant and of a continuous character.

Treatment :

(1) **Aconite**. Paralysis from cold.

(2) **Causticum**. If it does not yield to Aconite.

(3) **Kali Chloricum**. When there is tenderness of the part affected.

(4) **Graphites**. Paralysis with swelling and sensations of a cobweb on the face.

(5) **Causticum**. Paralysis of the rightside.

(6) **Zinc Picric**. (Facial paralysis).

THE AUDITORY AND VESTIBULAR NERVES

(The eighth cranial nerve)

The cranial eighth nerve consists of two groups of fibres different in their functions and in their origins and terminations. One group arising in the Cochlea and terminating in the cochlear nuclei in the pons is called the auditory or cochlear nerve, and the other group arising from the labyrinth, and ending mostly in the vestibular nuclei is called the vestibular nerve.

Lesions of the auditory nerve give rise to two symptoms, nerve deafness and tinnitus. *Nerve deafness* is distinguished from deafness due to middle ear disease by the fact that hearing is diminished or lost whether the sound is conveyed by air-conduction or by bone-conduction, whereas in middle ear deafness, hearing by bone-conduction is increased.

Tinnitus :

Is a subjective sensation of noise in the ear or in the head. It accompanies disease of auditory nerve of a slow degenerative nature. The most important symptom which results from the lesion of the vestibular nerve is vertigo.

The lesions which cause vertigo are :—

(a) **Ocular lesions** e.g. diplopia (Where cerebello-vestibular connections are involved).

(b) **Cerebellar lesions**

(c) **Brain-stem lesions** : such as, insufficiency of the basilar artery, medullar infarction.

(d) **Lesions of the vestibular nerve.** An acoustic neuroma may damage the nerve or vestibular neuritis occurs.

(e) **Aural lesions.** This includes Meniere's Syndrome and otitis media.

VERTIGO

Definition :

The term 'vertigo' is used by many people to describe a sense of dizziness or giddiness. But people who complain of dizziness or

giddiness do not have true vertigo. The fact is that those who have functional nervous disturbances complain of what they call 'dizziness' by which they mean momentary association of unsteadiness. In true 'vertigo', nystagmus is present, when vertigo is experienced. The true vertigo therefore, is always vestibular with lesions in the labyrinth, the inner ear. Ordinarily, however, it is considered convenient to restrict the term 'vertigo' to the description of a subjective feeling of movement of the external environment or of the brain within the head. The movement may be rotatory or a feeling of displacement in one direction. 'Vertigo' is always accompanied by a disturbance which usually causes the patient to seek support, and if sudden and severe, may throw him off the ground. It often causes a reflex autonomic discharge, leading to cold sweating, pallor, nausea, vomiting and sometimes diarrhoea, bradycardia or even syncope.

Causes :

(i) **Ocular lesions.** Diplopia occurs with vertigo, because the false projection of one image may cause confusion regarding position in space.

(iii) **Cerebellar lesions.** These may cause vertigo when cerebellar vestibular connections are involved.

(ii) **Brainstem lesions.** The vertigo may be caused by the particular positions of the head. The lesions, such as, insufficiency of the basilar artery, medullary infarction or syringobulbia may cause severe vertigo, when they involve the vestibular nuclei.

(iv) **The lesions of the vestibular nerve.** An acoustic neuroma may damage the nerve and cause vertigo. Vestibular neuronitis is a more common cause.

(v) **Aural lesions.** These lesions include *meniere's syndrome* when the labyrinth is damaged in a head injury and by mumps or by various toxic drugs. Hearing is invariably affected.

Treatment :

(1) **Aconite.** The vertigo of *Aconite* is congestive or auditory. It is worse on raising the head, or on rising from a lying position.

(2) **Argentum Nitricum.** Vertigo from diseases of eyes and brain ; vertigo accompanied with weakness and trembling ; much

mental confusion to be able to express oneself. This confusion is shown by a sensation that houses would fall on him, while he is walking up a street.

(3) **Bromine.** Vertigo worse when looking at running water.

(4) **Bryonia.** Gastric vertigo with nausea and tendency to faint, worse on rising from a lying position and on motion.

(5) **Causticum.** Vertigo preceding paralysis ; vertigo of organic brain disease ; tendency to fall forward or sideways ; great anxiety and weakness of head.

(6) **Chininum Sulph, Gelsemium, Causticum, and Natrum Salicylicum** are useful in auditory nerve vertigo.

(7) **Cinchona.** Gastric vertigo, associated with anaemia, or weakness.

(8) **Cocculus.** This drug acts on the autonomic or sympathetic nervous system. It is also useful in vertigo caused by digestive troubles, developing into the neuraesthenic type with occipital headache and lumbo-sacral irritation. There is flushed face and hot head ; worse from riding in a carriage and also after eating.

(9) **Conium.** Vertigo of the aged arising from excesses and overuse of tobacco, or cerebral anaemia ; when looking at an object, sensation of turning in a circle ; vertigo on going up, or down the stairs with inclination to sleep ; numb feeling in the brain, as if stupefied ; worse turning over in bed.

(10) **Ferrum Met.** Anaemic vertigo, worse when suddenly rising from a sitting or lying position. This vertigo comes in, when going down the hill, or on crossing water, even though the water lies smooth.

(11) **Nux. Vom and Pulsatilla.** Vertigo in gastric troubles.

(12) **Phosphorus** It has great curative powers in all kinds of vertigo, especially the nervous ones, caused by great weakness, sexual abuse, occurring in the morning in empty stomach, accompanied with fainting and trembling.

(13) **Rhus Tox.** Vertigo caused by senile changes in the brain ; vertigo on rising from a sitting position, and is associated with heavy limbs.

(14) **Theridion.** Nervous vertigo on closing eyes accompanied with nausea and greatly increased by noise or motion.

(15) **Belladonna.** Giddiness with partial unconsciousness or agitation ; when there is sparkling before the eyes, particularly when moving the eyes, increased by stooping (to be followed by *Kali Carb* if necessary).

(16) **Rhus Tox.** If giddiness is so bad that it makes the patient feel that he is going to die.

(17) **Pulsatilla.** If it is accompanied with buzzing in ears ; headache, or heat or paleness of the face or dimness of eyes.

(18) **Sulphur.** Vertigo with bleeding of the nose.

(19) **Chamomilla.** Vertigo with fainting followed by *Hepar Sulph.*

MENIERE'S SYNDROME

Definition :

This is a chronic disease of the labyrinth in which paroxysmal attacks of vertigo occur at regular intervals associated with tinnitus and progressive deafness.

Etiology :

The essential lesion is a gross distention of the endolymph system together with degenerative changes in the Cori's organ and the presence of albuminoid coagula throughout the endolymph spaces. These changes are not infective but probably degenerative in nature.

Meniere's syndrome is an interim vertigo without deafness and without evident cause. The precipitative causes are not known and in the absence of precise knowledge, the disturbance of fluid balance, allergy and migraine have all been mentioned. In some cases, the attacks are associated with diarrhoea.

Symptoms :

(i) The attacks begin suddenly with a buzzing noise (tinnitus) in the ears, followed by intense vertigo. It may be so severe that the patient may be hurled to the ground.

(ii) Spontaneous nistagmus occurs to the side of the lesion.

(iii) The patient becomes nauseated and often vomits repeatedly.

(iv) The skin is pale and covered with sweat.

(v) The patient lies perfectly still and in terror.

(vi) The attack may last from 15 minutes to one hour or so, but the patient takes several hours to recover completely.

(vii) Sometimes coughing and sneezing bring on the attack which may sometimes occur during sleep. It may also be brought on by the movement of the head. In fact, the position of the head influences it.

(viii) This disease is characterized by a slow onset of nerve deafness.

(ix) In some cases, the attacks cease when the labyrinth becomes defunct.

Diagnosis :

Paroxysmal nature of attacks and the association of nerve deafness and tinnitus are characteristic. The diagnosis presents no peculiar difficulty for the symptom are highly characteristic.

Prognosis :

The frequency of attacks decreases as deafness increases, but the disease may last for many years.

Treatment :

Natrum Salicylicum. For auditory vertigo, it is a very useful remedy. Other remedies are :

(1) **Chininum Sulphuricum.**

(2) **Gelsemium,**

(3) **Causticum.**

THE GLOSSOPHARYNGEAL NERVE

(The ninth cranial nerve)

Lesions of the ninth nerve involve loss of taste over the posterior one-third of the tongue with some unilateral paresis of the pharynx. It is rarely involved alone. In association with the other

nerves taking origin in the neighbourhood, it may be affected by tumours of the lateral region of the medulla and by syringomyelia.

DISEASES OF THE NINTH NERVE

(Glossopharyngeal Neuritis)

This is a rare form of neuralgia within the distribution of the glossopharyngeal nerve. It is strictly comparable with trigeminal neuralgia in quality and severity of pain; its paroxysmal incidence, the remission in its course, its provocations by special stimuli and finally by the absence of any discoverable lesion in, or loss of function of the nerve.

Nothing is known of its etiology. It is most seen in the middle-aged or elderly males. A symptomatic neuralgia of the same distribution is occasionally found with the carcinoma of the tongue or oesophagus, in which the growth invades the faucial region.

Symptoms :

(1) When fully developed, there are paroxysms of shooting pain of great severity in the throat and the ear.

(2) The exciting stimulus is commonly the act of swallowing. But just as in trigeminal neuralgia, the pain may at first be confined to a single branch of this nerve, so in glossopharyngeal neuralgia, the pain may long be confined to the tympanic branch, the pain being felt deep in the ear and not in the lobe.

(3) In other cases, the pain in the faucial region predominates, the pharyngeal branches being affected.

(4) During paroxysms, the patient screws up his face and may hold the head in his hand, as does the subject of trigeminal neuralgia.

Diagnosis :

This is made by the presence of severe pain, provoked by the act of swallowing, though in general it resembles the paroxysms of Tri. nerve. It is, however, restricted to the ear and throat only.

Treatment :

The following remedies will be helpful :

- (1) Belladonna
- (2) Causticum
- (3) Colocynth
- (4) Magnesia Phos.

THE VAGUS NERVE**(The tenth cranial nerve)**

This is a mixed nerve. It supplies motor fibres to the soft palate and the larynx and the pharynx in conjunction with the accessory fibres and also to the non-striated muscles of respiratory and alimentary tracts. The sensory fibres of the vagus supply the respiratory tract, the pharynx and the oesophagus. Its visceral fibres supply the lungs, heart and abdominal viscera. No sensibility seems to be supplied to the abdominal viscera by this nerve, since with the spinal cord above, the offshoot of splanchnic (pertaining to viscera) nerves, all sensibility to the abdomen is lost.

Lesions in the Vagus :

The important signs of lesions of this nerve and its nuclei are laryngeal and pharyngeal paralysis and loss of sensibility. Symptoms indicative of lesions of its complicated and mysterious visceral supply are neither well-marked nor well-understood and in unilateral lesions seem to be entirely absent. They are, therefore, not considered.

Lesions of vagus in the medulla are common. Syringomyelia, when affecting this region, causes unilateral paralysis of palate, pharynx and larynx. Lesions of the nerve roots often occur from tumours of the lateral region of the medulla and growths outside medulla arising from the nerve roots or meninges, and here the lesions of vagus roots is associated usually with those of glossopharyngeal spinal accessory. In the neck penetrating wounds and growths may implicate the nerve, and in the throat, tumours, particularly aneurysms and new growths, are apt to cause paralysis of muscles supplied by its recurrent branch.

DISEASES OF THE TENTH NERVE**(Unilateral Pharyngeal Paralysis)**

This is characteristic of all unilateral lesions of the vagus high up. It is recognised by the low-lying motionless palate and loss of sensibility of one side of the pharynx, with loss of pharyngeal reflex on that side. There is no impairment, whatever, of deglutition. When the soft palate is elevated, as in saying "Ah", it is pulled over to the sound side.

BILATERAL PHARYNGEAL PARALYSIS

This is caused by the lesions of nucleus ambiguus on both sides, and from diphtheritic neuritis, myasthenia gravis and progressive muscular atrophy. The whole palate is low and paretic or paralysed, the voice is nasal; there is usual regurgitation of liquids; the cheeks cannot be forcibly blown out, and there is difficulty in pronouncing final "k" or "g", the words "kick" and "egg" becoming "kich" and "enck".

TOTAL UNILATERAL LARYNGEAL PARALYSIS

Since the superior laryngeal nerve which supplies the cricothyroid muscle (the chief adductor of the vocal cords) is given off high in the neck from the ganglion of the trunk of the vagus, it follows that the total paralysis of the larynx on one side can only result from a lesion of the vagus between the ganglion of the trunk and the nucleus ambiguus in the medulla. The vocal cord on the paralysed side becomes motionless, midway between the abduction and adduction. The larynx is insensitive on the same side. There is some loss of vocal tone but no stridor.

UNILATERAL ABDUCTOR PARALYSIS

This occurs from all lesions of the trunk of the vagus below the ganglion of the trunk and from lesions of the recurrent laryngeal branch. The vocal cord on the side of paralysis lies close to the midline. It fails to abduct when the patient takes a deep breath. There is no change of voice, but there may be slight stridor on inspiration. The sensibility of the larynx is not affected.

BILATERAL ABDUCTOR PARALYSIS

This may be a complication of thyroidectomy and of carcinoma of the thyroid gland. It occurs also in bilateral lesions of the recurrent laryngeal nerves in the thorax which may result from tumour or aneurysm. It is the most dangerous form of laryngeal palsy, as the vocal cords cannot be abducted, and they tend to be sucked together during inspiration. For this reason bilateral abduction paralysis may cause death from asphyxia and necessitates tracheostomy.

Treatment :

(1) **Ferrum Phos** will control inflammatory conditions of the larynx and pharynx and *Belladonna*, when throat is dry and painful on speaking, with huskiness and hoarseness.

(2) **Arum Triphyllum**. For hoarseness of singers and orators.

(3) **Selenium** will clear the voice when used for a long time.

(4) **Graphites**. When the voice cracks on beginning to sing.

(5) **Argentum Met**. When there is rawness and burning of larynx and the voice gets worse from talking and using.

(6) **Merc Sol**. If given twice a day, this remedy is specific for hoarseness.

(7) **Carbo. Veg**. For hoarseness brought on by damp weather.

(8) **Nux Mosch**. Aphonia from hysteria or changing emotions.

(9) **Plumbum**. Aphonia in old cases.

(10) **Hepar Sulph**. It is also a remedy for laryngeal troubles of singers, and when the patient is sensitive to draught. It is also the remedy in chronic cases.

(11) **Kali Bich**. When there is dryness of larynx, and the voice is rough and hollow with stringy expectoration.

(12) **Gelsemium**. It is the first remedy in laryngeal paralysis and subsequent aphonia ; also for aphonia during menses ; when the tongue is paralysed and benumbed, and coated yellow.

(13) **Ipecac.** Complete aphonia from cold or congestion of vocal cords.

(14) **Causticum.** Catarrhal paralysis and aphonia with dryness of larynx, or dry hoarse cough with soreness and scrappy sensation in the chest (try Sulphur, if this fails) ; or paralysis of tongue with indistinct speech.

(15) **Phosphorus.** Useful in paralysis, aphonia, followed by Rumex.

(16) **Oxalic acid.** Paralysis of vocal cord muscles and loss of voice.

(17) **Baryta Iodide.** Aphonia due to obstruction or a growth in larynx.

(18) **Arnica.** Loss of voice from over-exertion.

(19) **Antim crud.** The voice is lost every time there is an exposure to heat.

(20) **Ignatia.** Hysterical aphonia.

(21) **Iodium.** Loss of voice on account of weakness.

(22) **Baryta Carb.** Chronic hoarseness.

THE SPINAL ACCESSORY nerve

(The eleventh cranial nerve)

The eleventh nerve may be caught with the vagus by lateral lesions outside the medulla, or by lesions in the region of the jugular foramen. But it is more often damaged by injuries to the neck and by operations for the removal of the cervical glands. The spinal accessory nerve, as it crosses the posterior triangle of the neck, is liable to injury, either from blows or from sudden strains. Most of the isolated trapezius palsies happen like this.

Disease of Eleventh Nerve

(i) When the *sternomastoid* is paralysed, there is neither any complaint by the patient of any weakness, nor deformity, nor peculiar attitude of the neck, other muscles compensating for its paralysis. The muscle does not harden, when the head is turned to the side opposite to the paralysis.

(ii) **Paralysis of the trapezius** on the other hand, causes great disability in raising the arm above the shoulder and also difficulty in shrugging the shoulder or approximating the scapula to the middle line behind, and therefore, also in carrying the extended arm backwards. But the only part of the trapezius that is completely paralysed by the disease of the spinal accessory nerve is the highest portion. The other parts of the trapezius are weakened but not paralysed. In consequence of this weakness, the shoulder falls a little, the scapula moves slightly laterally, and by the unopposed action of the rhomboids and the levator anguli scapulae, it is rotated, the lower angle moving medially.

THE TWELFTH NERVE

(The Hypoglossal Nerve)

The twelfth nerve supplies nerve fibres to all the muscles of the tongue. A lesion of one hypoglossal nucleus in the medulla gives rise to atrophic paralysis of one half of the tongue. The tongue becomes sickle-shaped with the concavity on the paralysed side. There is little impairment of movement within the mouth and no defect of articulation, but the tongue turns to the paralysed side, when protruded. Tumours and injuries are common causes.

Atrophic paralysis of the whole tongue occurs when both hypoglossal nuclei are affected and is commonly seen in progressive bulbar paralysis when the tongue cannot be protruded and articulation is greatly impaired. It is due partly to the fact that other paralyses are associated with this.

Diseases :

Upper motor neurone paralysis is often seen, as in motor neurone disease. The tongue is in a state of spastic paralysis in bilateral hemiplegia ; neighbouring parts are similarly affected. Dysphagia and impairment of articulation are frequent. The tongue appears contracted. But there is no real wasting and no loss of electrical excitability.

VII—INFECTIONS OF MENINGES AND THE NERVOUS SYSTEM

(Meningitis)

Definition :

The infective processes of meningitis have their seat in the leptomeninges ; the pia arachnoid. A true inflammatory lesion of the dura mater, viz, *pachymeningitis*, is much less common, and is usually a localised process due to the direct spread from adjacent bone.

Acute leptomeningitis is usually generalised and spreads rapidly on arising from a local focus of infection throughout the sub-arachnoid space. The inflammation not only produces characteristic changes in the pia-arachnoid, but also changes the composition of C.S.F.

Classification :

The most useful classification of the varieties of meningitis is according to the nature of the micro-organism, producing the inflammation, namely :

- (1) Pyogenic, meningococcal, pneumococcal and others, (e.g., staphylococcal, streptococcal, H influenzae).
- (2) Tuberculous.
- (3) Aseptic or viral.
- (4) Yeast and others including syphilitic meningitis.

(1) Pyogenic meningitis

Etiology :

Bacterial infection of the meninges almost always follows a similar infection elsewhere in the body, e.g. empyema or otitis, while pneumonia, abdominal infection, abscess and joint infection are less common.

Apart from meningococcal and pneumococcal infections suppurative meningitis may result from the invasion of the meninges by staphylococci, H. Influenzae, coliform bacilli, bacillus anthracis and streptothrix.

Clinical Features :

The clinical form is that which is common to all forms of acute meningitis : high fever, rigors, headache, delirium being conspicuous. Convulsions and photophobia are common.

Prognosis :

The course is rapid. Recovery is ensured in the localised form, where extension of infection is prevented.

Diagnosis :

This depends upon

- (1) the presence of clinical signs of meningitis,
- (2) cerebrospinal fluid containing polymorphonuclear leucocytes in large quantities and
- (3) on the recognition in the fluid of several micro-organisms, responsible, by microscopic examination and culture.

(2) Tuberculous Meningitis

This disease results from the general invasion of the cerebrospinal leptomeninges by blood-borne tubercle bacilli. Occurring at all ages, it is by far the most common in childhood and early adult life.

Symptoms :

- (1) The onset is usually gradual, with signs of vague and slight illness, and in children, general apathy and neglect of amusements and play.
- (2) Headache, loss of appetite, constipation, fretfulness restlessness at night with grinding of teeth during sleep ; vomiting and pyrexia are other common symptoms.
- (3) Disappearance of knee and ankle jerks and retention of urine are common in suspected cases.

Diagnosis :

It should be considered in the case of every child who is sick without obvious cause, especially in a patient known to have tuberculosis, who develops persistent headache, perhaps with slight fever in the evening. If there is stiffness of the neck or choroidal tubercles in the eye grounds, there should be no hesitation in having the CSF radiologically examined for tubercles.

(3) Yeast Meningitis**Definition :**

These conditions are rare, and they present evidence of chronic meningitis, raised intracranial pressure and of brain stem disorder. The condition is similar to that of tuberculous meningitis with

extensive infiltration of structures at the base of the brain, with gelatinous purulent material and consequent obstructive hydrocephalus.

Symptoms :

(1) The patients are usually young adults who may have complained of double vision (diplopia) and who now complain of headache, intellectual inefficiency and drowsiness.

(2) The signs are those of low grade meningitis, and evidence of raised pressure, nausea, a furred tongue and papilloedema.

Diagnosis :

This is invariably made by the examination of the CSF by microscope which will show the presence of large yeast cells in the fluid. The cerebrospinal fluid will show the raised pressure and the presence of marked protein and lowering of sugar content due to the presence of yeast.

(4) Viral Meningitis (Aseptic meningitis)

Aseptic meningitis is a syndrome associated with infection by arbo, enterovirus and other viruses with preponderance of mononuclear cells in the cerebrospinal fluid. Proteins may be increased in quantity, but the sugar and chloride levels are usually normal. This aids in differentiating it from tuberculous meningitis. *Leptospira* and toxoplasma may also cause aseptic meningitis (Lymphocytic meningitis). This group is relatively unimportant as a cause of illness in man. The prognosis is usually good.

(5) Syphilitic Meningitis

This condition may occur at any time after infection with *Treponema pallidum*. But 50% of cases occur during the first four years. In a few cases the symptoms have been noticed coincidentally with syphilitic roseola. It is now rare.

Symptoms :

(1) Besides massive gummata and neuronc degeneration, other symptoms are headache and hydrocephalus.

(2) Infantile syphilitic meningitis is a chronic reaction beginning in the first few months of life with signs of general deterioration. The signs of meningitis are obvious, but those of congenital syphilis may be present.

(3) Adult syphilitic meningitis with a symptom resembling that of tuberculous meningitis is reported.

(4) Paralysis of cranial nerves is there. Several of these nerves may be involved in one patch of meningitis.

Treatment :

General : (1) Shave the scalp and apply cold water to the head in acute cases.

(2) Liquid nutritious diet should be given in all cases.

Curative :

(1) **Aconite.** Meningitis from the heat of sun's rays after long exposure or cerebral congestion from anger. Fear is a marked symptom. It is useful only in the beginning.

(2) **Apis Mel.** For infantile cases where the child screams with his hands on the head or has stabbing pains, oedematous face, scanty urine, thirstlessness, or tubercular meningitis due to an under developed eruption.

(3) **Belladonna.** Simple meningitis, useful in stages before effusion commences when there is intense heat of body, strong pulse, bright red face, delirium, or when the child or patient starts in sleep and grinds teeth.

(4) **Bryonia.** Suits at the effusion stage of the disease. The indications are constant chewing motion of the mouth ; when moved, the patient screams with pain, has stupid looks, abdomen distended, and tongue white, pains are sharp and stitching, and the patient drinks greedily ; livid, flushed face, high temperature, copious sweats, and suppressed eruptions.

(5) **Camphora.** When collapse approaches speedily and the patient is cold, pale and pulseless with eyes sunken. He is cold and yet he does not want to be covered.

(6) **Cicuta Virosa.** Useful at the convulsive stage with twitching of fingers and unconsciousness, stiff neck ; violent jerks ; dilated pupils and staring looks, trismus ; and strangles on drinking.

(7) **Cuprum.** Suits cases at the stage of effusion, marked with violent convulsions, with thumbs clenched, loud screaming ; face pale and lips blue.

(8) **Helleborus.** Useful for later stages, when effusion has taken place and the indications, then, are : wrinkling of forehead, dilated pupils and automatic movements of one arm and one leg ; shooting pains in the head ; sudden crying out, screaming, boring head into the pillow ; the cries have a most pitiful sound.

(9) **Iodoform 6X** is said to have cured several cases.

(10) **Sulphur.** This is useful in tubercular meningitis. The child lies in a stupor with cold sweat on forehead ; jerks limbs ; has spasms and suppressed urine.

(11) **Zincum Met.** For tubercular meningitis due to suppressed eruptions ; fever is slight or absent, marked twitchings, jerkings, hypersensitiveness of all the senses and skin, and tremulousness of the feet. There are sharp lancinating pains and great exhaustion of nerve force ; 6X potency is recommended.

(12) **Calc. Carb.** Suits children of phlegmatic temperament with large heads, open fontanelles, pale face, abnormally large abdomen. The child is sluggish, sweats about the head during sleep, screams terribly without cause. The urine is strong (Tuberculous Meningitis).

(13) **Calc. Phos.** The child is thin with sunken, flabby abdomen, and skin and hair dark.

(14) **Iodine** is also a remedy for the first stage in tuberculous variety.

(15) **Bacillinum** is also recommended as an interim remedy.

(16) **Veratrum viride.** Acute meningitis, coldness of surface, loss of consciousness, dilated pupils, laboured, slow irregular pulse.

VIII—THE CEREBROSPINAL FLUID AND DISORDERS OF ITS CIRCULATION

(Cerebro-spinal Fluid)

The cerebro-spinal fluid fills the cerebral ventricles, the sub-arachnoid cisterns and the general sub-arachnoid space. It is formed by the choroid plexuses of the lateral third and fourth ventricles and escaping through the foramen of Magendie and Luschka passes over the convexities of the brain and through the whole extent of the spinal sub-arachnoid space to be reabsorbed into the venous blood stream through arachnoid villi, particularly those contained in the Pacchionian bodies in the sagittal sinus. It is produced by active secretion and corresponds accurately to a protein-free filtrate of the plasma varying in composition with changes in the circulating blood.

HYDROCEPHALUS

Definition :

Hydrocephalus denotes a condition of abnormal accumulation of cerebrospinal fluid within the skull which may be confined to the ventricular cavities (internal hydrocephalus), and may involve both the ventricular and the general arachnoid spaces. This distension is associated in many children with an expansion of the cranial bones and enlargement of the skull.

General causes :

Theoretically the abnormal increase of fluid may be caused by :

- (1) excessive production of fluid,
- (2) interference or obstruction in the normal flow of blood,
- (3) defective absorption. Of these the most important cause is the obstruction in the normal flow of the fluid. The disease is classified on a clinical basis as :

(a) **Congenital hydrocephalus** and

(b) **acquired hydrocephalus**, both acute and chronic.

CONGENITAL HYDROCEPHALUS

Etiology :

In many cases the etiology remains unknown. Hereditary influences are, however, important in the causation of congenital hydrocephalus.

(2) It may even appear as a familial disease, affecting members of several generations of the same stock.

(3) Spina bifida, meningocele and hydromyelia are often associated with this condition, and irregular or arrested development of the brain-stem and cerebellum are common.

(4) In a few cases the syphilitic lesions of the ependyma (the membrane lining the cerebral ventricles) of the brain in the region of the aqueduct (fourth ventricle) have been found.

Symptoms and Signs :

(1) Enlargement of head, which is often asymmetrical, is the first noticeable feature.

(2) More frequently the cranial enlargement is noticed during the first few weeks of life.

(3) The sutures may be wholly open.

(4) In an untreated case, the face is characteristically triangular.

(5) Wasting of the facial tissues and retarded development is present.

(6) The hair of the head become scanty and veins are often distended.

(7) Percussion of the skull gives a characteristic hollow, 'cracked pot' note. The nervous symptoms may be summed up as follows : convulsions, mental failure, spastic paralysis of the limbs, optic atrophy, deafness, nystagmus, headache, papilloedema and vomiting. All these symptoms, however, are not present in every case.

Diagnosis :

Because of the shape of the skull, there is seldom any difficulty in making a correct diagnosis. To distinguish it from rickets, the

latter is recognised by the absence of the nervous signs (excepting convulsions) and by the absence of the characteristic percussion note and the presence of other rachitic signs and the enlarged skull.

Prognosis :

In all severe and progressive cases, the prognosis is hopeless. In milder cases, the process becomes arrested and the patient may attain adult life in possession of all his faculties.

CHRONIC ACQUIRED HYDROCEPHALUS

The acute condition results from rapid and severe obstruction to the flow of cerebrospinal fluid in subjects whose skulls are no longer capable of expansion, or in the case of children when the expansion of the skull cannot keep pace with the ventricular distension. Therefore, unlike the chronic and congenital forms of hydrocephalus, there is little or no enlargement of the head in acute cases and the clinical picture is that of raised intracranial pressure, usually without localising signs. The commonest cause of acute forms is a midline tumour, particularly in the posterior area, obstructing the flow of cerebrospinal fluid at the third or fourth ventricle. The majority of cases are characterised by headache, vomiting, and papilloedema. The diagnosis is confirmed by angiography or ventriculography.

Etiology :

Chronic hydrocephalus, secondary to obstruction in the cerebrospinal fluid pathway, may result from a variety of causes :

- (1) The foremost is meningitis, including tuberculous meningitis.
- (2) It is caused by the occlusion of foramina of *Luschka* and *Magendie* and results in a uniform distension of the entire ventricular system.
- (3) Another group of cases depends upon a primary non-neoplastic stenosis of the aqueduct of Sylvius.
- (4) In others the ependyma may undergo proliferation with the development of tufts which project into the lumen of the canal and form valve-like obstructions to the flow of the fluid.

(5) In still others, the lumen itself may be split up into a number of minute channels, hardly visible to the naked eye.

(6) In a third group, acquired hydrocephalus results from the presence of neoplasms of slow growth which obstruct the cerebrospinal fluid channels.

(7) Other causes are cysts and slowly growing tumours of the 3rd and 4th ventricles or the midbrain.

Symptoms :

The symptoms of chronic acquired hydrocephalus depend largely upon the age of the onset. In early infancy the picture is similar to that of congenital variety ; in early childhood it is that of moderate hydrocephalus combined with the symptoms and signs of raised intracranial pressure.

Pressure symptoms often begin abruptly after the signs of hydrocephalus have been present for a long time. These are head aches usually paroxysmal, vomiting, squinting and double vision. Papilloedema is common and, if left, leads to failure of vision from consecutive optic atrophy, which may come on quickly. In long-standing cases, mental failure may occur and there may be weakness and incoordination of movement from a combination of disturbances of the pyramidal and cerebellar systems. There may be arrest of development with delayed puberty and even infantilism.

ACUTE ACQUIRED HYDROCEPHALUS

Definition :

This condition is the result of the rapid and severe obstruction to the flow of the cerebrospinal fluid in patients whose skulls are not capable of expansion or in the case of children when the expansion cannot keep pace with the ventricular distension.

Etiology :

(1) The commonest cause is a midline tumour particularly in the posterior fossa obstructing the flow of the cerebrospinal fluid at the 3rd ventricle into the 4th ventricle.

(2) Acute obstruction of the foramen of Magendie can occur by a thin curtain of arachnoid, forming a valve, and diffuse arachnoid adhesions following meningitis or arising with no evident cause which may obstruct the flow of the fluid over the convexity or at the tentorial hiatus. (Tentorium is a part of dura mater.)

Symptoms :

These are the general symptoms of :

(1) Increased intracranial pressure of rapid onset and great severity.

(2) The majority of cases present symptoms of headache, vomiting, papilloedema without lesions of the cerebellum.

(3) Mottled appearance of the vault resembling that of beaten silver in radiological examination is revealed.

(4) There may be some decalcification and flattening of the cavity in the sphenoid bone.

Prognosis :

Congenital causes are mostly fatal. In the acquired variety, an early treatment can improve the mental capacity to a fair degree.

Treatment :

General : (1) Have the room darkened and avoid all noise and disturbance.

(2) Liquid and nutritious diet should be given.

Curative :

(1) **Apis.** The child is very drowsy and the accumulation of fluid is rapid. Increase of urine is prompted by this remedy. The child bores his head into the pillow and rolls it from side to side. Every now and then there is a shrill cry due to pain, with squint eye, rapid and weak pulse. It is a slow acting remedy.

(2) **Apocynum.** Large head with bulging of frontal bones, squinting, paralysis, but no screaming, suppressed urine, constant involuntary motion of one leg. This remedy will enable urine to pass in a large quantity and lessen its pressure.

(3) **Baryta Carb.** Large head, thin neck and tubercular tendency ; the child does not want to play ; glandular enlargements, hacking cough and emaciation.

(4) **Belladonna** is the chief remedy in acute cases with fever and meningeal symptoms.

(5) **Calcarea Carb.** It suits lively, precocious, large-headed children with weak memory and sweating scalp during sleep and looseness of bowels. The child screams without cause.

(6) **Calcarea Phos.** Suits children with a pale and sallow complexion. The ears and nose are cold ; retarded dentition ; stools loose, green and slimy and there is constant desire to nurse ; craving for potatoes, starchy food, or salted meat.

(7) **Helleborus.** Cases of torpor and unconsciousness with piercing screams ; suppressed urine ; eyes do not react to light ; automatic motion of one-half of the body ; constant chewing motion ; greedy thirst ; insensibility of nerves ; or it is a period of the beginning of paralysis.

(8) **Kali Iodatum.** Tubercular tendency with darting pains in the head ; redness of face, dry hacking cough ; worse at night.

(9) **Silicea.** Head large with sweat all over ; sudden startings in sleep ; sour eructations ; redness of face ; cold hands and face.

(10) **Sulphur.** Scrofulous child ; cold sweat ; jerking of limbs ; spasm of the big toes ; congenital cases.

(11) **Tuberculinum.** As an intercurrent remedy, it should be given particularly to those with a tubercular tendency.

(12) **Zincum Met.** The following indications call for this remedy : rolling of head and waking from sleep, as if frightened ; occiput is hot ; the forehead is cool ; grinding of teeth ; eyes are sensitive to light ; staring eyes ; nose is dry ; jerking of muscles during sleep and a fidgety motion of the feet ; the head is enlarged with a sensation of great outward pressure ; the child is weak and cold, bores his head in the pillow and cries out.

INTRACRANIAL TUMOURS

Definition :

Intracranial tumours include all new growths or formations within the intracranial space, which produce the familiar pressure and local symptoms of a tumour, though some of them may be abscesses, inflammatory granuloma, or large solitary aneurysms and not the neoplasms.

Etiology :

The brain is one of the commonest sites of new growths, such as, Glioma (tumour of brain substance), Meningioma and *Neuro-fibroma* (arising in meninges or nerve sheath), *Adenoma* (pituitary tumour), *Secondary carcinoma* and *sarcoma* (extensions of lung cancer), blood vessels' tumours, infective granuloma, parasitic and other cysts. Infection is, perhaps, the main cause. Cerebral tumours may occur at any age, but they are rare in the very young and the very old. Head injury may be another cause.

Symptoms :

(1) An early symptom is the intra-cranial hypertension, which is apt to be overlooked in children.

(2) Headache early in the morning, aggravated by coughing, stooping or straining during stool.

(3) Vomiting is sometimes present.

(4) Tinnitus and deafness arise.

(5) Mental drowsiness is seen.

(6) Nasal irritation.

(7) Giddiness.

(8) Convulsions occur.

(9) Raised blood pressure, slow pulse rate and shallow respiration rate are noticed.

(10) Nasal irritation is a curious symptom, but a common one.

Signs :

(1) Epileptic convulsions of a rigid type (opisthotonos).

(2) Staggering gait, particularly in children occasionally among adults.

(3) Enlargement of head is often the first indication of a brain tumour.

(4) Double vision (diplopia), obscuration of vision due to tension on the optic nerve.

(5) Sudden hemiplegia, sometimes resulting from haemorrhage or thrombosis.

(6) Blood pressure is high and respiration is slow.

Diagnosis :

The diagnosis of a cranial tumour is incomplete without locating its position in the brain, for it may be confused with encephalitis, cerebral abscesses, internal hydrocephalus and larger aneurysms. For this purpose, radiographs of the skull and examination of the cerebro-spinal fluid may give valuable information. Auscultation may reveal an audible bruit (cardiac murmur).

Prognosis :

This is generally unfavourable ; for death is hastened by haemorrhage, brain oedema and rapidly increasing intra-cranial pressure.

Treatment :

(1) **Baryta Carb.** When tumours in the brain cause symptoms corresponding to this remedy, this should be prescribed. There are sclerotic conditions of the brain with excessive irritation of all the nerves and premature loss of memory.

(2) **Belladonna.** This is the prime remedy in all cerebral affections. The child bores its head into the pillow with convulsions and stupor, from which he can hardly be aroused.

(3) **Calcarea Carb** is the remedy for encysted tumours.

(4) **Conium.** Irritability is the characteristic symptom. Tumours are inclined to be hard ; the chief remedy for carcinoma.

(5) **Hydrastis.** Malignant tumours have disappeared with the continued use of this medicine. The symptoms are jaded look

and sallow complexion, low spirits, skin hide-bound, loss of appetite, constipation.

(6) **Besides, Carcinosin 200** should be given once a week.

(7) **Plumbum Iod.** The tumour which is hard and of unchangeable character, develops slowly with painful inflammations therein.

Note :

In case of abscess formation in the brain, the remedies may be :

- (1) Aconite
- (2) Belladonna
- (3) Hepar Sulph
- (4) Mercurius
- (5) Silicea
- (6) Sulphur,

IX—DISORDERS OF THE CEREBRAL BLOOD VESSELS

Apoplexy (stroke)

Definition :

A stroke, popularly known as “apoplexy”, is the result of sudden haemorrhage from an artery in the brain in consequence of a deficient supply of blood (Ischaemia) due to some obstacle in the artery of the brain or elsewhere. Rupture is usually precipitated by abrupt rise of blood pressure, or cerebral aneurysms.

Etiology :

The common causes of haemorrhage and rupture are :

- (1) Hypertension.
- (2) Atherosclerosis.

Bleeding may occur with any disease of the intra-cranial vessels but most commonly with atherosclerosis and aneurysm. Rupture is preceptitated usually by abrupt rise of blood pressure, occasioned by physical or emotional stress, but sometimes it is apparently spontaneous. Coagulation defects are rare causes. Spontaneous intracerebral haemorrhage occurs from the middle cranial artery from

the external capsule, and rapidly involves the internal capsule. The pons is also a frequent site (where bleeding is often fatal) but haemorrhage may occur from any intra-cerebral artery.

Clinical Features :

(1) The onset is rapid with focal signs according to the site of the haemorrhage.

(2) About half of the cases lose consciousness within a few minutes.

(3) Before this happens, headache and vomiting are common symptoms.

(4) Neck stiffness may be found.

(5) The rapid displacement of the brain stem causes coma with loss of muscle tone, stertorous breathing, slowing of the pulse and respiration.

(6) The face is often congested.

(7) Pupils may be unequal.

(8) If the haemorrhage is dark, the pupils become pinpoint in size and temperature rises to 105°F or higher.

(9) The more common capsular haemorrhage causes contralateral hemiplegia.

(10) On recovering consciousness, the patient may be dysphasic, if the haemorrhage has affected the dominant hemisphere. The amount of recovery depends mainly upon the extent of the damage.

(11) The initial recovery is rapid, but the tempo slows down after the second month; the initial improvement is attributed to recovery from 'neuronal shock'.

(12) Sudden lesions may suppress the function of the neurones, which are however, able to return to their normal function at a later date.

(13) The first order sensory neurones and the lower motor neurones are uniquely necessary and their loss cannot be replaced.

Diagnosis :

Cerebral haemorrhage, Thrombosis, Embolism :

These lesions can sometimes be distinguished from each other.

A sudden onset and a source of emboli point to an embolism ; the rapid development of a stroke, often with loss of consciousness in a hypertensive patient, suggests a haemorrhagic lesion ; a more gradual onset indicates a thrombotic process.

Sub-arachnoid haemorrhage :

The onset is sudden, signs of meningeal irritation are present and the CSF contains blood.

Cerebral tumour.

Tumours, particularly metastatic may sometimes present rapidly developing signs and mimic a vascular lesion. Five per cent of strokes are due to cerebral tumours. Headache may indicate true diagnosis, but often this is revealed by subsequent progression or by investigation.

Cerebral Haemorrhage	Cerebral Thrombosis	Cerebral Embolism
Age :		
Middle and advanced life.	Middle or advanced life or any age.	Any age, but frequent in early life.
Causes :		
1. Arterio-sclerosis with high blood pressure.	1. Cerebral Atheroma	1. Cardiac lesions, especially mitral stenosis, auricular fibrillation and malignant endo carditis.
2. Blood pressure	2. Syphilitic endo-carditis.	
3. Acute infections & septicaemia.	3. Acute infections.	
	4. Exhausting conditions, phthisis, anaemia.	2. 'Fat Embolism' in fracture of long bones.
	5. Cardiac enfeeblement.	
Onset :		
Coma, usually sudden with convulsions	Onset usually gradual with vertigo : sometimes convulsions ; rarely coma.	Instantaneous loss of consciousness.
Time of Onset :		
During emotional excitement or physical exertion.	Often during sleep.	During exertion.

Prognosis :

Recovery is impossible, if coma lasts for more than 24 hours.

Treatment :**Preventive :**

To stop further aggravation of arterial diseases, diet, drinks, physical exertion, anxiety, worries, and the period of relaxation should be carefully adjusted.

Diet : (1) Animal food is harmful.

(2) Highly seasoned food and stimulants are forbidden.

Curative :

During the fit :

(1) **Aconite.** Quick, full pulse ; repeat the dose every quarter of an hour.

(2) **Belladonna.** This should be prescribed in very early symptoms during apoplexy, if the face is flushed and the head is full and throbbing (great redness of face, bloated appearance, active congestion, drowsiness and loss of consciousness.)

(3) **Nux Vom.** In cases of less active congestion and fever, with error in diet.

(4) **Opium.** Coma with stertorous breathing.

Before apoplexy actually overtakes, there are indications of giddiness, headache, high blood pressure, rush of blood to head, numbness and tingling. Under these conditions give :

(1) **Nux Vomica.** For habitual drunkards.

(2) **Aconite for numbness** and tingling.

(3) **Asterias Rubens or Glonoine** for rush of blood to head, hyper-tension and co-existing kidney disease.

Other remedies :

(5) **Arnica.** When there are no signs of active congestion, as this remedy will abort the disease.

(6) **Baryta Carb.** For old people, and impending paralysis, when the tongue is complicated.

(7) **Hyoscyamus**. For involuntary passage of stool and urine.

(8) **Sulphur**. For absorption of the clot after *Arnica* and *Kali Mur*.

HEMIPLEGIA

Definition :

Hemiplegia is a loss of voluntary movements on one side of the body including the face, the trunk, the arm and the leg, usually resulting from a cerebro-vascular accident on the opposite side. The subject attacked may be an adult, a child, or an infant.

Etiology :

(1) Instantaneous and sudden hemiplegia is caused by cerebral embolism ; one that develops in a few minutes is caused by the rupture of an artery (stroke) and that which takes several minutes or hours, is due to thrombosis.

(2) Hysteria may sometimes be a functional cause.

(3) Sometimes, hemiplegia is due to the effects of pressure by a cerebral tumour or an abscess, uraemia, chorea or general sclerosis. Such an hemiplegia comes on over a period of days, weeks or months. It is most often due to an infarction in the brain.

Symptoms :

(1) The immediate effect is the flaccid type of paralysis lacking firmness.

(2) Gradually motor power is restored, but the muscles become rigid.

(3) At first tongue and face muscles partly recover, and then the legs and lastly the arms.

(4) Finer movements in the fingers never recover.

(5) This progress in recovery continues over several years.

Treatment :

General : (1) Active exercise, massage and nourishing food are necessary.

(2) Movement of joints should be practised everyday to prevent adhesions.

Curative :

(1) **Aurum Met.** In hemiplegia, when there is a great tendency to weep or feel despondent.

(2) **Baryta Carb.** Hemiplegia due to the degeneration of the arterial walls. It is recommended specially for old people in paralysis after apoplexy when there is want of steadiness.

(3) **Gelsemium.** For motor paralysis which is due to emotions. It is functional in origin and there is aching in occiput; numbness, tremor ; speech difficult or indistinct.

(4) **Causticum.** Hemiplegia from cold ; paralysis of single muscles, tongue, speech, lower extremities, but not as a result of apoplexy.

(5) **Lachesis.** For slow speech in hemiplegia.

(6) **Strychninum.** Hemiplegia with rigidity of muscles.

(7) **Nux Vom.** When paralysis has come from over-eating and drinking, with digestive disorders.

(8) **Secale.** For threatening rigidity.

CEREBRAL EMBOLISM**Definition :**

Cerebral embolism is an obstruction from a blood clot in the brain by :

- (i) a fragment of a blood clot,
- (ii) a vegetation or a detached portion of one of the cardiac valves, or
- (iii) rarely an atheromatous plaque,
- (iv) air bubbles, or
- (v) globules of fat.

Etiology :

The usual cause of cerebral embolus is :

(1) a fragment detached from a clot in mitral stenosis with atrial fibrillation or myocardial infarction.

(2) other sources of clot (emboli) are an aneurysm of the large vessels between the heart and the brain.

(3) in the pulmonary veins and the left heart in suppurating conditions of the lungs.

(4) in other cases, emboli are formed by vegetation from acute bacterial carditis,

(5) emboli are usually formed during operation on lungs or during delivery in association with a retained placenta,

(6) some fat emboli may form after fracture of long bones and cause death.

(7) air globules may pass through the pulmonary filter.

Symptoms :

(1) Usually consciousness is not lost, but a stupor state may occur with the onset or after a few hours.

(2) A stroke due to embolism and the resulting hemiplegia is the common syndrome and it may be a severe one.

(3) Hemiplegia is gradual when emboli are numerous and of a small size. Hemiplegia is gradual, if the emboli are numerous and of small size, particularly when they are infected.

Diagnosis :

Embolism cannot be diagnosed, unless there is evidence of a cardiac disease, aneurysm or some other recognised cause, but in their presence, particularly that of atrial fibrillation, they form a usual cause of a stroke which may occur.

Treatment :

(1) Kali Mur.

(2) Baryta Carb.

(3) Belladonna.

(4) Arnica.

CEREBRAL ARTERIOSCLEROSIS

Definition :

Cerebral arteriosclerosis is a condition in which there is a

thickening of the cranial nerves associated with some degree of atheroma or degenerative changes in the middle-aged and the elderly people.

Pathology :

The brain is the seat of innumerable minute, vascular lesions. There are many small softenings on its surface and the cerebral cortex becomes thinned in consequence of degenerative changes. In the central parts of the brain, especially the basal ganglia, small cysts develop from the softenings and eventually a mesh-like condition may result.

Symptoms :

(1) Memory for recent events becomes faulty, while for events long past, remains unimpaired.

(2) Emotional control is impaired.

(3) Confusion and lack of attention may lead to incontinence and disorders of dress.

(4) Dysphasia is common and apraxia may also occur.

(5) Muscular rigidity slowly develops.

(6) Grasp reflex, tendon jerks and plantar reflexes are affected.

(7) The most pronounced physical symptom is spastic paralysis of the muscles.

(8) The voluntary movement is restricted, the tongue looks small and cannot be protruded beyond the teeth.

(9) The speech is unintelligible.

(10) There is difficulty in swallowing and mastication.

(11) Uncontrolled laughter or crying may occur.

Diagnosis :

Other forms of pre-senile dementia are not associated with the same degree of motor disturbances as in atherosclerotic dementia. If mental symptoms dominate in the early stage, general paralysis of the insane is ruled out. The distinction from motor neurone disease is not difficult with the absence of wasting and the presence of muscular rigidity in the upper limbs.

Treatment :

See "Arteriosclerosis" in Chap. II.

X—NEUROSYPHILIS

The nervous system is involved in congenital and in acquired syphilis, and it seems that the *T. Pallidum* invades it early in the secondary stage. After an interval of from 2 to 30 years symptoms may develop. The resulting diseases are divided into three forms, which may coexist.

(1) **General Paralysis of the insane** in which the organism is found within central nervous system.

(2) **Tabes dorsalis**, caused by the degeneration of sensory roots and pathways.

(3) Meningo-vascular syphilis in which the neurological symptoms are secondary to gummatous changes.

GENERAL PARALYSIS OF THE INSANE**(Dementia Paralytica or General Paresis)****Definition :**

General paralysis of the insane is a progressive generalised muscular weakness and tremor, accompanied by mental and physical deterioration, resulting from a form of cerebral syphilis, mostly in young men in the prime of life, finally ending in dementia and paralysis.

Etiology :

The disease usually begins between 8 and 20 years due to atrophy and a diffuse sclerosis in the cerebral cortex, from syphilis. The *spirochaete pallida* or *Treponema pallidum* can be demonstrated in the cortex of the brain and in the tissues. The disease results from the infiltration and destruction of the parenchyma by the syphilitic organism between 8 and 20 years after infection. The incidence is much greater in males and the onset is between the ages of 30 and 50.

Symptoms :

(1) At an early stage, any change in the personality of the adult should arouse suspicion of paretic neurosyphilis.

(2) Frequently, the neurasthenic symptoms develop into a mild depression or elation.

(3) The early physical signs are : headache, visual disorder, and loss of weight.

(4) These are soon followed by tremors and inability to make coordinated movements.

(5) Another symptom is the speech defect.

(6) Pupils get dilated and respond poorly to light.

(7) Gradually, in the second stage, the mind deteriorates in which signs of dementia begin to appear. Delusions, apprehension, self accusations, anxiety, depression or elation become prominent.

(8) The last stage is that of paretic seizures of either epileptic or apoplectic form, accompanied by temporary paralysis with marked defects in speech.

(9) The last stage is that of great weakness, when the patient becomes bedridden, resulting in bed-sores and paralysis of all the muscles of the body.

Symptoms :

The first of the physical changes accompanying the mental deterioration is almost always 'tremor'. It begins by affecting the voice and when the tongue, lips and cheeks become tremulous, the irregularity of articulation is pronounced. As the memory fails, confusion arises in the construction of long sentences, proper names are forgotten and the vocabulary diminishes.

Tremor becomes marked in the hands and the other parts of the body and as a result of unsteadiness of hands, writing deteriorates.

There are no other physical signs as a general rule, but, papillary abnormalities are common. The signs of disturbance of the pyramidal system-extensor palmar reflexes, and exertion of tendon jerks usually occur before long. Incontinence of urine often occurs early, but it is more often due to a failure of the sphinctor reflexes. At a later stage the control of both rectum and bladder is lost. Sexual impotence is present in most cases for several years before

mental symptoms appear. Hemiplegia and monoplegia appears. Recovery occurs in the course of a few days, but the limbs become gradually weak.

Diff. Diagnosis :

Chronic Alcoholism and Peripheral Neuritis and other forms of cerebral syphilitic disease are sometimes difficult to differentiate from it. The disease is recognised by the examination of the cerebro-spinal fluid, which undergoes characteristic changes. Tremor is present in the voice almost invariably. The distinction from *Tabes Dorsalis* is not so difficult, but these two diseases are apt to recur in a mixed form. Mental deterioration and paralysis may be present in other forms, but tremor of voice is seldom prominent, and the changes in the cerebro-spinal fluid are unlikely.

Prognosis :

This was considered till now fatal, but at the present moment, the prognosis is more hopeful.

Treatment :

The following list of remedies is suggested :

- (1) Cannabis Indica (marked exaltation).
- (2) Hyoscyamus.
- (3) Aesculus Glabra.
- (4) Mercurius Cor. (tremors).
- (5) Badiaga.
- (6) Phosphorus (twitching.)
- (7) Plumbum Met.
- (8) Stramonium.
- (9) Belladonna (early stage).
- (10) Kali Iodide.
- (11) Oenanthe crocata (epileptic fits).

TABES DORSALIS

(Locomotor Ataxia)

Definition :

Locomotor Ataxia is a type of neurosyphilis, characterised by degeneration of sensory posterior columns of the spinal cord and the sensory nerve roots by loss of the sense of position and distinctive

muscular control, recognised by irregular and jerky movements of the lower limbs while walking, and by numerous other signs.

Etiology :

The disease usually appears 5 to 15 years after the primary syphilitic infection, as a result of degeneration of the posterior roots between the ganglion and the spinal cord in about 5% of untreated patients. The disease occurs also as a result of congenital syphilis in adolescence. Males are affected a good deal more frequently than females.

Symptoms and Signs :

(a) The most common features are :

- (i) Lightning pains.
- (ii) Objective disturbances of sensation.
- (iii) Loss of tender reflexes.
- (iv) Ataxia.
- (v) Disturbance of papillary reflexes.
- (vi) Impairment of bladder control.

Less common are :

(vii) Acute disturbances of function of certain viscera, of which gastric crises are the most common, but rectal, vesical and laryngeal crises also occur.

(viii) Atrophy of the optic nerves.

(ix) Trophic changes :—

- (1) Charcot, disease of joints.
- (2) Perforating ulcers of the skin.

(3) Loss of vigour. These are further classified as follows :

(b) Relating to posterior roots :

(1) In Tabes, symptoms spread over a prolonged period and take 10 to 30 years to develop, and hence it becomes difficult to diagnose it early.

(2) The patient first complains of *rheumatism* (lightning, tearing pains in legs of a paroxysmal type), bladder troubles, dribbling of urine; acute abdominal pain and vomiting; failure of vision and diplopia, or a swollen joint.

(3) Cutaneous sensory impairment occurs.

(4) Diminution or loss of deep reflexes and hypotonia.

(5) Sensory ataxia is due to the impairment of the sense of position and passive movement of joints.

(6) In later stages, ataxia is manifested. the gait being wide-based and heels being brought down jerkily with a *stamp* and the feet lifted high in stepping owing to errors in projection of limbs.

(c) Relating to other parts of Nervous System :

(1) The pupils gradually become smaller and irregular in outlines (often oval) and ultimately fail to react to light.

(2) Diplopia and ptosis with wrinkling of the forehead.

(3) Optic atrophy leads finally to complete blindness.

(d) Vesicles and sexual disabilities :

(1) Dribbling of urine and incontinence at night.

(2) The retention of urine leads to cystitis and pyelo-nephritis.

(3) Impotence is an early symptom.

(4) Acute abdominal pains with vomiting may occur. Besides atrophic changes in joints, the spine, thumb, limbs and finger joints may be affected.

Diagnosis :

(1) Ataxy in its early stage is diagnosed by the paroxysmal character of pains, combined with a history of syphilis.

(2) Patches on the palate, the tongue, or the cheeks, as also repeated miscarriages are suggestive of a syphilitic history.

(3) The diagnosis may not be confirmed by the examination of blood and cerebro-spinal fluid which may not provide any evidence of syphilis. The diagnosis rests on :

(i) lightning pains,

(ii) characteristic sensory signs,

(iii) history of syphilis,

(iv) absence of one or both ankles or knee joints.

Prognosis :

With an early treatment, improvement is possible. Occasionally, the progress of the disease is arrested spontaneously with cessation of lightning pains.

Treatment :

The course of treatment should be anti-syphilitic and be based on the examination of cerebro-spinal fluid every six months. The patient should be kept free from excitement and worry. The diet should be easy to digest.

Curative :

(1) **Alumina.** This remedy is at the head of the list of remedies for this disease along with *Argentum Nit* and *Secale* to be prescribed on the following indications : sensation, as if ants were crawling on the legs or there was a cobweb on the face, and benumbed sensation of legs ; Alumina type of constipation ; eye disorders e.g. diplopia and ptosis in vision. Heaviness of limbs—can scarcely lift them ; pain in back, as if hot iron was thrust through, inability to walk, except with eyes open and in the day time ; soles of feet swollen and too soft, numbness of heels, lightning like pains, shooting to and from the back and the abdomen.

(2) **Argentum Nitricum.** It is a great remedy for incoordination and should be prescribed on the following indications : unable to stand in the dark, or with eyes closed ; legs feel, as if made of wood, and calves feel bruised ; incontinence of urine ; sexual desire destroyed ; violent pains without exhaustion ; soreness in small of back, worse on rising ; trembling of hands, the patient is nervous ; atrophy of optic nerve ; this remedy should be given in the advanced stage.

(3) **Belladonna.** Agonising, sudden pains, trembling of limbs and tottering gait ; when walking he raises his legs, as if he had to pass over an obstacle ; incoordination of lower and upper extremities ; the patient raises his foot and puts it down with great force ; this remedy is suitable for initial stages.

(4) **Kali Iodide.** Suitable for a syphilitic form of ataxia.

(5) **Nitric Acid.** Suitable for locomotor ataxia of syphilitic origin, special symptoms being severe headache, with tension; imperfect vision; mental depression and irritability; weakness of memory, sharp pains in lower extremities, which appear and disappear suddenly.

(6) **Phosphorus.** Atrophy of the optic nerve with flashes of light; trembling of hands while writing; great nervous prostration; sudden agonising pains in different parts of the body, excited by the slightest chill, great sexual excitement; burning sensation along the spine and in the extremities with formication.

(7) **Picric Acid.** In the earlier stages of the disease, there is sometimes painful sexual excitement which this remedy will subdue; great weakness of legs with numbness, crawling and pricking, as if from needles; easily exhausted from the slightest exertion; limbs are very heavy.

(8) **Plumbum Met.** Paralysis with atrophy; loss of coordination, insensibility and impotence; agonising severe pains, worse at night (*Plumbum Phosphoricum* is recommended by some authorities).

(9) **Secale.** Absence of knee jerks, sudden severe agonising pains; lack of muscular control and irregular awkward movements; difficult staggering gait and complete inability to walk or to perform with hands and feet; excessive sensation of heat with aversion to being covered.

(10) **Silicea.** Great irritability and debility; agonising pains; weakness in lower extremities with a tendency towards destruction of tissues; ulceration of feet and the toe nails.

(11) **Nux Vom.** When the disease is brought by sexual excesses, and there is great irritability and excitability and great sensitivity to all impressions.

(12) **Arsenicum.** When the pains are burning with restlessness, anxiety and irritability.

(13) **Nat. Phos.** Lightning pains, greater by warmth.

(14) **Medorrhinum 200.** Lightning pains with urinary troubles.

XI-DISEASES OF THE SPINAL CORD**Paraplegia****Motor Symptoms :**

Interruption of the pyramidal tracts produces spastic weakness in parts below the lesion which, when fully developed constitutes the picture of spastic paraplegia. The clinical features are :

- (1) Diminution of voluntary power.
- (2) Alterations in the amount of distribution of muscle tone and in the attitude of limbs.
- (3) Changes in the tenors and reflexes.
- (4) The occurrence of some involuntary and reflex movements.

The muscles of the leg are divided into two groups : the flexors, and extensors ; that which dorsiflex the foot and toes are physiological flexors while the plantar flexors are extensors. The muscles will be grouped accordingly.

In spastic paraplegia :

(1) Loss of voluntary power varies from slight weakness of one group of muscles to complete paralysis of both limbs and depends on the degree of damage to the pyramidal tracts. It begins in distal segments of the limb and is greater in the flexors than in the extensors. **Dorsiflexion** is the earliest and the most severely impaired movement.

(2) The tone in all the muscles increases early and is greatest in extensors.

(3) Hence an early symptoms is stiffness of the limbs and a difficulty in flexing them. This is termed as clasp-knife rigidity. The combination of spasticity and weakness with extended lower limbs is known as "paraplegia in extension".

(4) Exaggeration of the tendon reflexes is constantly an early sign of spastic paraplegia. The abdominal reflexes are lost. The normal plantar reflex is also lost and is replaced by the extensor plantar response.

(5) While the limbs are stiff in extension, the commonest involuntary movement is a spontaneous clonus of the extensor muscles in which the whole limb trembles. Later on a new kind of

movement appears, in which the limbs are drawn up suddenly from time to time by flexor spasms.

Sensory tract disturbances :

(1) When the two sides of the cord are affected unequally, anaesthesia is confined to one side.

(2) In the antero-lateral column of the cord, the spino-thalamic cord is concerned with pain and temperature sensation on the opposite half of the body, in the lumbo-sacral enlargement the pain and temperature fibres cross slowly. At higher levels crossing of fibres is slower, until in the upper cervical region, it is extremely slow.

(3) At all levels, *pain* crosses most quickly, then *cold*, then *heat*, and *touch* is the slowest of all.

(4) Sense of position in the feet and legs with resulting ataxia is affected when posterior columns are involved in the lesion.

Diagnosis of location of the lesion :

Wasting of muscles in an intercostal space is a valuable guide. If the lesion is at the level of the ninth dorsal segment, the rectus abdominis is weakened below a point about an inch above the umbilicus. If the lesion is the twelfth dorsal segment, the entire rectus contracts, but the iliac region bulges, owing to weakness of the lower part of the oblique muscles.

As regards sensory localisation, there are sensing areas of each segment of the cord. Root 'Pains' in the distribution of one or more of these areas form a fairly sure guide to the affected segment. There may also be sensory loss or impairment over the same areas and this may be continuous below with the sensory loss which is the result of interference with the sensory tracts, or there may be an interval corresponding to the distribution of one or several segments between the 'root loss' at the affected site and the upper limit of the tract loss.

Curative :

(1) **Aconite.** Paraplegia with tingling and numbness.

(2) **Alumina.** Paralysis of the lower extremities, of spinal origin, particularly the legs which are so heavy that the patient can scarcely drag them.

(3) **Conium**. Acute ascending paralysis of the aged.

(4) **Dulcamara**. Simple paralysis of the lower extremities due to damp weather or caused by lying on damp ground.

(5) **Nux. Vom.** Paralysis of the lower extremities ; contractive sensations and heaviness in limbs.

(6) **Rhus Tox.** Suits paralysis of the lower extremities, and is adapted to all forms of paralysis, which are of rheumatic origin, or brought on by getting wet and exposure to dampness in any form. There is much stiffness in limbs with a dragging gait. It is suitable for chronic cases. (Compare Sulphur).

(7) **Arnica**. Paraplegia from accident.

(8) **Argentum Nitricum**. Paraplegia from exhaustion, contusion or sexual excesses.

(9) **Oxalic Acid**. Paraplegia with rigidity.

(10) **Lathyrus**. With rigidity, spasm and reflexes.

(11) **Kali Iodide** and **Merc. Cor.** If there is syphilitic history or other remedies fail.

(12) **Cuprum M.** Spasmodic paralysis with wasting of muscles.

(13) **Picric Acid**. Great weakness of lower limbs, heaviness, weariness ; hands and feet go to sleep, pains, numbness, great sexual excitement.

(14) **Thalium**. Paralysis of lower limbs.

(15) **Anaholinum**. Paraplegia and motor incoordination.

(16) **Kali Tartaricum**. Paraplegia without indications.

ACUTE TRANSVERSE MYELITIS

Definition :

It is a morbid condition of the cord with a tendency to inflammation in a short portion of its length, comprising one or two segments, mostly in the lower half of the dorsal region.

Etiology :

The condition is rare during childhood, and mostly occurs during the first half of adult life. Both sexes are affected equally. In most cases, the cause cannot be determined. Some cases are of viral origin, some due to acute demyelination ; syphilis has long ceased to be the frequent cause.

Symptoms :

(1) There may be malaise and a slightly raised temperature and sometimes pain of 'root' type at the level of the lesion for a few days before the onset of paralysis. These symptoms are followed by weakness of one or both legs and paralysis may be complete from the waist down within 24 or 48 hours.

(2) In other cases, the onset is apoplectic *i.e.* the patient feeling some weakness, sits down, and within a few minutes is completely paraplegic.

(3) If the patient is seen after the onset, he usually shows complete motor and sensory paralysis from the waist down, with flaccidity of the muscles and loss of reflexes.

(4) Retention of urine is present and may have gone on to overflow incontinence.

(5) There may be from the first a zone of hyperaesthesia at the upper limit of the paralysis, and later a girdle sensation may develop at this site.

(6) While the limbs are flaccid and the sensation is absent, bed-sores may develop with great rapidity, and in the paralysed bladder, intense cystitis may occur.

(7) More often sensation and the reflexes return after a few weeks, and in course of time spasticity develops in the limbs with a variable amount of voluntary power.

Differential Diagnosis :

Poliomyelitis is excluded by the presence of severe sensory loss. It may not be possible to make the differential diagnosis from haemorrhage into the substance of the cord, but the latter is usually associated with more pain and, after the first acute stage is over,

with a syringomyelic type of sensory loss. Angioma of the cord usually causes less acute paralysis coming on with less constitutional disturbance.

Prognosis :

All cases tend to improve, but complete recovery is rare.

Treatment :

General : (1) The patient should be kept free from excitement.

(2) Give frequent bath and hot fomentations to spine.

(3) Use enema, if necessary.

(4) Give a wholesome, nutritive diet.

Curative :

(1) **Aconite**. Violent pain along the spine, tetanic spasm, fever.

(2) **Cicuta Virosa**. Violent convulsions ; piercing cries.

(3) **Nux. Vom.** Tetanic fever, sensitiveness to all impressions.

(4) **Oxalic Acid**. Great rigidity of the lower limbs, pain, chilliness, chronic cases.

(5) **Strychninum**. Chronic cases ; cramps and contraction of the paralytic limbs ; loss of sensibility to every thing except cold, which excites or aggravates the symptoms ; neuralgia, pain affecting hands and feet especially.

(6) **Plumbum**. Chronic spinal paralysis.

(7) **Belladonna**. For inflammatory chronic spinal paralysis.

SYRINGOMYELIA**Definition :**

Syringomyelia is a chronic progressive, wasting disease of the nervous system, characterised by the formation of long cavities, with the surrounding fibrous tissue in the lower spinal cord and a part of the brain stem, coupled with interference with the sensory sensations of pain, temperature and paralysis of the lower limbs, or of the area of medulla oblongata. The disease manifests itself

by the appearance of a wasted hand in young adults. To the disease in the brain stem only, the term *syronglobulia* is often employed. The conditions are uncommon.

Etiology :

Both sexes are equally affected. There appear to be no hereditary factors. Occasionally, however, symptoms may appear in childhood and in some cases, lateral and backward curvature of spine, developing in this period, has been the first sign of this malady. It may be accompanied by other structural abnormalities of congenital origin, such as, spina bifida or deformities of the skull and bones. The view at present is that a congenital defect of the angle of the brain stem makes the central canal of the spinal cord subject to the direct thrust of the pulsating pressure of the spinal fluid. This distends the canal and causes distinctive pressure upon the surrounding tissues.

Clinical Features :

Five chief groups of symptoms occur :

(a) **Sensory Changes.** (1) The patient is unable to feel pin-pricks and hot objects. He often without noticing, blisters himself with cigarette end ; yet he may be able to feel light touches with the cotton wool ; while the joint movement and vibration sense are normal. In later stages, all forms of sensibility may be lost. This insensibility extends gradually to the neck, the face and the arms.

(b) **Motor Symptoms.** Muscular atrophy occurs in the hand and forearm muscles on one or both sides. Claw-hand may be present or contractures may occur in the wasted hand. At a later stage spastic paralysis of the legs is an inconsistent feature.

(c) **Trophic and Vasomotor Changes.** These occur with diffuse thickening of subcutaneous tissues. The hands and fingers are often scarred, necrosed and blistered or ulcerated as a result of whitlows, infected erosions and burns.

(d) **Skeletal Deformities.** These are extremely common from weakness of spinal muscles. e.g. backward or lateral curvature of the dorsal spine ; hollow foot or claw-foot ; occasionally enlargement of hands, feet and face.

(e) **Cervical Sympathetic Involvement.** Owing to vasodilatation on the affected side of the face, the eyebrows, moustache and the beard may grow more profusely on that side.

Diagnosis :

A slowly developing paralysis with sensory loss and with or without muscular atrophy should always suggest the possibility of syringomyelia.

Prognosis :

The disease lasts usually for many years. When it advances rapidly, chances of recovery are almost negligible. In fact, the recovery is unknown.

Treatment :

Only three remedies are of some value :

- (1) Plumbum Aceticum.
- (2) Phosphorus.
- (3) Gelsemium.

XIII—DISORDERS OF PERIPHERAL NERVES (Mononeuropathy or Mononeuritis)

Definition :

When the involvement of a single peripheral nerve is affected in any accident or a malady, the term mononeuritis or mononeuropathy is used to denote the condition.

Etiology :

Individual peripheral nerves may be damaged by many agencies which affect them in a variety of ways.

(1) Direct wounding may sever the nerve completely or partially.

(2) Injury by a blow or transmitted concussion in surrounding tissues, as occurs with the passage of a projectile near the nerve, may destroy the axons.

(3) Milder injuries interrupt function for hours or days.

(4) Nerves may also be injured by pressure from a plaster and other splints and chronic over-stretching.

(5) Peripheral nerve lesions may follow a variety of general infections.

(6) Nerves may be involved in specific inflammatory processes, such as, leprosy.

(7) Finally, they may be involved in new growths, such as, carcinoma from a neighbouring focus.

Diagnosis :

The location of individual nerve injuries has been greatly helped by nerve conduction studies. A measured length of nerve is subjected to electrical stimulation through a pair of surface electrodes, and the time the resulting impulse takes to reach the end of the part under examination is evident on an oscilloscope. The delay in conduction is proportional to the degree of damage. When there is injury to motor nerves, the electromyogram (EMG) gives information of the state of the denervated muscle. By both techniques recovery of the nerve can be followed objectively.

The Sweating Test :

It is based upon loss of the sudomotor fibres in the territory of the sensory cutaneous distribution of a nerve. The test consists of applying a powder of starch and iodine to the skin and producing generalized sweating by warming the body. There is no change in colour in the denervated area.

Tinel's Sign :

This is very useful, for instance, in determining the site of injury to the ulnar nerve at the elbow.

When more than one peripheral nerve is involved in diseases, as in periarteritis nodosa, diabetes, or serum reactions, the term *mononeuritis multiplex* is used.

THE PHRENIC NERVE

This nerve supplies the diaphragm :

Paralysis results most often from disease of the spinal cord, but the roots may be implicated in disease of the spine, and the trunk

may be injured in its course through the neck and thorax, by wounds or tumours. Bilateral paralysis occurs in lesions of the cord and spine, and in acute infective polyneuritis. Other causes usually affect one side only. When the diaphragm is completely paralysed, the normal inspiratory protrusion of the abdomen disappears.

THE BRACHIAL PLEXUS

The brachial plexus may be injured by wounding, by dislocation of the shoulder or fracture of the clavicle, or by pressure of a tumour, aneurysm or cervical rib. Further, the nerves may be torn by forcible dragging on the arm in accidents or during delivery. In most cases, the lesion is partial, and paralytic symptoms appear (Erb's palsy).

THE RADIAL NERVE

Owing to its long course, its position in relation to the humerus and its peculiar vulnerability to compression, paralysis of the radial nerve is one of the commonest peripheral nerve palsies. Although it is a mixed nerve, containing sensory, motor and vasomotor fibres, the symptoms of an injury are almost entirely motor.

Injury to the nerves is followed by dropping of the wrist and fingers. The wrist and the first phalanges are flexed. The flexion is limp and easily reducible.

In most cases, the nerve is injured in the middle third of the arm and the triceps escapes, but the brachio-radialis and all the extensor muscles in the forearm are paralysed. Partial paralyses, such as are seen in lesions of the median and ulnar nerves, are very rare.

Sensory Disturbances :

Subjective symptoms are rare. In a few cases paraesthesiae are felt on the posterior aspect of the forearm and on the dorsal aspect of the thumb. They are of brief duration and are commoner with partial than with complete lesions. Sensibility to light, touch, superficial pain and temperature is impaired over a small area on the radial border of the hand including the proximal joint of the thumbs and the first two fingers. The defect is often very slight and is only discovered on very careful examination. Deep sensation, is rarely affected.

THE ULNAR NERVE

This nerve supplies the ulnar flexor of the wrist, the ulnar half of the deep flexor of the fingers, and inner head of the short flexor of the thumb. Its sensory area is the ulnar border of the hand, the little finger and the ulnar half of the ring finger.

Paralysis of the carpi ulnaris is detected, when wrists are flexed against resistance. Lateral movements of the hand are unaffected, as these are carried out by the extensors. In making a fist the flexion of the index finger is perfect, and that of the middle finger good, whilst in the ring and little finger, it is absent or very feeble. As regards sensory disturbances, all forms of sensation are abolished. Spontaneous pains are rare and vasomotor changes are usually slight. The commonest site of injury is in the ulnar groove of the elbow, where pressure causes a local lesion. Recovery is generally possible by surgery. The nerve is involved on both sides simultaneously in leprosy.

The Sciatic Nerve :

This is described in detail on page 844.

Treatment :

(1) **Aconite**. Simple neuritis caused by exposure to cold, with coldness, tearing pains, nightly aggravation and numbness.

(2) **Arnica**. For traumatic cases and terminal nerves, pain with soreness and bruisedness. (*Bellis perennis*, if this fails).

(3) **Hypericum**. Traumatic neuritis with sharp cutting pain, where nerves have been lacerated and the parts are extremely sore.

(4) **Rhus Tox**. Occasionally in traumatic cases but especially in rheumatic variety, due to exertion and exposure to wet weather, aggravated from damp cold and better by motion.

(5) **Cimicifuga**. Alcoholic neuritis. (*Ledum* and *Plumbum* : for alcoholic variety, where atrophy appears).

(6) **Arsenicum**. For multiple neuritis of a severe type with burning, worse at night, and better by warmth. (*Phosphorus*, if this fails.)

(7) **Anantherum Muriaticum**. It has cured root neuritis. (*Thalium*, if this fails).

(8) **Carb. Sulph**. Ist is used in neuritis in the sciatic variety.

INTERSTITIAL NEURITIS

Definition :

This is a painful disorder of plexus or nerve trunk but which may affect any peripheral nerve, once regarded due to inflammation of the interstitial connective tissues which surround and bind together the nerve fibres into the nerve trunks. This hypothetical view of its pathology is no longer seriously entertained.

Etiology :

It is a malady of middle life. When single or a group of nerves get involved, injury or an adjacent infection is usually the cause. Sometime it is associated with other forms of fibrositis or especially arthritis of the shoulders or the hips. Gout, diabetes, and chronic nephritis are well-known clinical associations of interstitial neuritis.

Symptoms :

- (1) Tingling, pricking or numbness are common.
- (2) Stretching or pressure on the sciatic nerve is common.
- (3) Cramps and tremors may appear.

Signs :

- (1) Wastage of muscle.
- (2) Nutritional changes may take place.
- (3) Paralysis or loss of sensation is very slight.

Diagnosis :

Interstitial neuritis is distinguished from pressure effects on nerve-roots by tumours or in consequence of a rupture of vertebral disc, by noting that pressure lesions do not produce pain of a severe type and that tenderness is absent, when there is pressure on a nerve trunk. Signs of sensory loss and paralysis come on early.

Treatment :

- (1) **Ranunculus Bulbosus** is almost a specific for interstitial neuritis.
- (2) **Cimicifuga** is useful in neuritis, reflex from the uterus.
- (3) Apply externally **Aconite**. (Mother tincture).

SCIATICA

Definition :

The term sciatica is an old one, applied when pain is experienced along the course and in the distribution of the sciatic nerve, that is to say, in the buttock, back of the thigh, outer side and back of the leg and the outer border of the foot. It is important at the outset to notice the limitations of this distribution and, in particular to notice that the sciatic nerve does not supply any structures on the front of the thigh, and so pain in that region or in the groin is not included in sciatica.

Etiology and Pathology :

The most common cause is herniation of an intervertebral disc. Other causes are much rarer but important to recognise. They include spinal tumour (neurofibroma and meningioma), ankylosing spondylitis, malignant disease in the pelvis, and tuberculosis of the vertebral bodies, or of the sacro-iliac joint. Degenerative changes in the intervertebral discs may appear as early as 20 years of age, but herniation is often precipitated by trauma, such as, twisting the spine, lifting heavy weights while the spine is flexed or during childbirth. The nucleus may bulge or rupture the annulus fibrosus, giving rise to lumbago by pressure on nerve endings in the spinal ligaments and by producing changes in the joints of the vertebral arches, and to sciatica by causing congestion of, or pressure on the nerve roots.

Symptoms :

(1) The outstanding feature is pain. It begins in the small of the back. It may remain confined to the back, but in most cases it extends down the back of the thigh and then down the leg and possibly into the foot, so that the clinical condition becomes one of sciatica.

(2) The pain is severe and lancinating, aggravated by stooping, by coughing and sneezing, by turning in bed, and relieved by lying still.

(3) Flexion of the extended leg at the hip is always painful.

Signs :

(1) Lumbar spine is moderately flat and tilted at the site of the lesion.

(2) On pressure, the muscles are sometimes rigid, but invariably tender.

(3) Wasting of muscles is apparent.

(4) Cutaneous sensation is usually unaffected.

(5) There may be less sensation of pain, loss of tickle in the sole, or a loss of light touch, or loss of sense of position of the small toe.

Diagnosis :

The distribution of pain with diminution or absence of the ankle-jerk is characteristic. Most cases are due to ruptured discs, particularly in people of athletic type who indulge in violent physical activities.

Prognosis :

A case of interstitial neuritis recovers quickly, but the disc rupture may cause prolonged and recurrent sciatica.

Referred Sciatic Pain :

In most cases of sciatic pain, there are no manifestations of disease of the sciatic nerve itself, either in the way of impaired function or of tenderness and the pain is believed to be a referred pain excited by disease of other structures within the nerve distribution of the spinal segments from which the sciatic nerve arises. The pain is abolished by the cure of primary disease.

Conditions which may cause referred pain are arthritis in the hip joint, arthritis in the sacro-iliac joint disease of the lower lumbar vertebrae or of the sacrum, trauma of the gluteal muscles and lesions of the vertebral ligaments. It should be noted that the malignant disease of the lower vertebral bones may cause severe referred sciatica. The absence of neurological pain is the most diagnostic feature.

Treatment

General : (1) Hot applications often afford relief.

(2) Electric treatment and nerve stretching prove beneficial.

Curative :

(1) **Aconite.** This is the remedy when sciatica is caused by exposure to cold, dampness, and from suppressed perspiration. In

addition, there is numbness, perverted sensation, pricking and a sense of coldness in the parts especially toes. The pains are severe and worse at night, the patient is restless and there is tingling along the nerve.

(2) **Ammonium Mur.** Sciatica with aggravation of pain, while sitting, somewhat relieved by walking and entirely relieved by lying down. Pain in the left hip, as if the tendons were too short, legs feel contracted, painful jerks, feet feel as if asleep.

(3) **Arsenicum.** Chronic cases ; pain aggravated at night and in the posterior part of the leg at the same hour is unbearable. Pain increases with vigorous motion and is relieved by a gentle motion.

(4) **Bell.** Sensitive to pain and touch, severe at night ; the least draft of air aggravates ; severe lancinating pains coming in the afternoon or evening ; has to change position often, worse from motion noise, shrieks, or contact. The patient cannot bear the clothing to touch him, relieved by letting the limb hang down, warmth and erect posture.

(5) **Bryonia.** Sciatica of rheumatic origin ; pain worse from motion and relieved by hard pressure.

(6) **Colchicum.** Right-sided sharp shooting pains extending to knee ; worse by motion, pain is sudden, constant and intolerable.

(7) **Colocynth.** Useful in worst recent cases. The indications are : pain extends to knee or the heel, worse from any motion and aggravated by cold ; paroxysmal pains followed by numbness and partial paralysis ; sensation, as if the thigh is bound with iron bands, or as if screwed in a vice, particularly right-sided ; stitches during walking ; pains may come suddenly and leave suddenly ; sticking or burning, worse by damp, at night, and when the patient does not find an easy position for the limb. Sciatica due to nerve changes, but not due to neuritis.

(8) **Glonoine.** Sciatic nerve is throbbing ; there is numbness, and uneasiness.

(9) **Gnaphalium**. Similar to *colocynth*. The indications calling for the remedy are : Intense neuralgic pains alternated with numbness. The whole trunk and main branches seem affected, worse from lying down, motion or stooping ; better while sitting in a chair. The pains extend to back.

(10) **Kali Bich.** Darting pains in the left thigh, relieved by motion.

(11) **Mag. Phos. & Kali Phos.** are effective tissue remedies for sciatica.

(12) **Nux. Vom.** Acts on the spinal cord. It has lightning-like pains with twitching of parts. The patient has to change his position ; pains shoot to the feet ; the limbs stiff and contracted ; the parts feel paralysed and cold ; better when lying on the affected side and from hot water, constipated bowels and sedentary habit.

(13) **Phosphorus, Silicea, Natrum Mur. and Sulphur** are applicable in cases of vertebral diseases.

(14) **Phytolacca.** Darting tearing pains aggravated by motion (cases of syphilitic origin).

(15) **Ruta.** Shooting pains down the back, down the sciatic nerve on first moving or on rising ; pains are felt most in the region of the knee, worse during damp or cold weather and from cold applications.

(16) **Viscum Album.** This remedy had the credit of curing a number of severe and long standing cases.

(17) **Sepia, Ferrum Sulphur, Graphites and Mercurius** are applicable to uterine sciatica.

(18) **Chamomilla.** Sciatica in nervous persons aggravated at night by warmth, and is on the left side, of a crampy nature, making the patient irritable and peevish.

(19) **Lycopodium.** Obstinate cases with constipation.

(20) **Plumbum.** Sciatica with atrophy of muscles, lightning like pains and cramps in paroxysms.

(21) **Pulsatilla.** Sciatica due to venous stasis ; useful in mild cases, with a sense of fatigue and heaviness ; flying attacks and cutting pains in loins and hips.

(22) **Rhus Tox.** When sciatica pains involve muscles and ligaments in a chronic case. Pains are tearing and burning, worse during rest, relieved temporarily by motion. There is lameness and disposition to muscular twitching, bowels are constipated. Sciatica arising from exposure to wet weather or over-exertion, drenching, and over-lifting, great relief from warmth.

TETANUS

(Lock-jaw)

Definition :

Tetanus is a neuro-toxic infection and neuromuscular disorder, caused by a specific bacteria passing into the system during its growth in the degenerated tissues, characterised by tonic spasm of the muscle of mastication and other muscles with paroxysmal activity. The spasm of the jaw muscles is known as 'Trismus' or *Lock-Jaw*.

Etiology :

The bacillus of tetanus is a slender, spore bearing anaerobic rod, the spores forming at the end of the organism giving it a characteristic drumstick appearance. Spores are highly resistant to destruction by heat or antiseptics, and can remain dormant in tissues for months until conditions become suitable for germination. They are present in animal and human faeces and are widely distributed in dust and soil, particularly in highly manured ground.

Tetanus follows injury in a great majority of cases. Punctured wounds, for example, by a nail or rose thorn are more favourable for the germination of spores than are superficial scratches. A special injury provides a suitable culture medium for the bacilli, e.g. severe injury, especially one in which clothing or other debris enters the wounds and thus increases the risk of tetanus.

Symptoms :

The incubation period is commonly 2—21 days. The longer the incubation, the better the prognosis. Most cases of tetanus pass through three stages.

- (1) Prodromal stage.
- (2) Stage of tonic rigidity.
- (3) Stage of reflex convulsions.

Prodromal symptoms of fleeting back pain and a general feeling that all is not well often precede muscle spasm by 24 hours. There is a little difficulty in swallowing at this stage and this may lead to complaint of sorethroat. The difficulty of swallowing increases.

Second Stage :

Trismus (painless spasm of the jaw) is the first indication of tonic rigidity and may be the first symptom. The distance between the incisors is a useful guide to the progress of the disease. At the same time the recti of the abdomen stiffen with the spasm steadily increasing. All movements become slow and difficult, including breathing and swallowing, the alteration in voice with clenched teeth and limited movement is typical.

Third Stage :

The third stage of reflex spasms (convulsions) due to excitability of nerve appears within a few hours of tonic rigidity in a severe case. The mild case takes five days and there is no spasm. The convulsions may persist upto 2 to 3 weeks or occasionally longer and become intensely painful and are dreaded by the patient as to cause laryngeal obstruction and stop respiration. The patient becomes intensely cyanosed. The condition becomes thus very serious and may become fatal. The disease is essentially a febrile, although any patient may show some fever. More fever is usually due to secondary infections. The more important complications are respiratory and may prove fatal : asphyxia, pneumonia, respiratory obstruction, insufficient coughing and dysphagia.

Diff. Diagnosis :

Lock-jaw occurs in certain cases of septic throat and septic teeth. Careful examination of the mouth should clear the diagnosis. In strychninum poisoning, muscles are relaxed between spasms,

a condition never seen in *tetanus*. Besides, trismus and *cervical rigidity* never exist alone in strychnine poisoning. In *meningitis* there is temperature, but there is no trismus. In *hysterical convulsions*, there are other evidences of hysteria.

Prognosis :

In severe cases of generalised tetanus, the outlook is grave and mortality rarely is high. The unfavourable features are short incubation period and the rapid progression of symptoms. Patients with an incubation period of about 8 to 10 days after infection generally have a favourable course and recover more frequently.

Treatment :

(1) **Aconite**. Tetanus with fever, numbness and tingling from exposure to cold or injury. The face changes colour.

(2) **Angustura**. Tetanic rigidity of muscles, painful stiffness and stretching of the limbs ; the lips are drawn back showing that the teeth and the jaws are locked.

(3) **Belladonna**. Stiffness of jaws ; tetanus of infants.

(4) **Carbolic Acid**. This has been used with success in tetanus, and it is said to be a powerful remedy.

(5) **Cicuta Virosa**. To be used in tetanic convulsions having sudden rigidity and jerkiness followed by prostration. There is a great oppression of breathing, locked jaw, rigidity renewed by touch, fixed and staring eyes.

(6) **Cuprum**. When the patient loses consciousness with each spasm.

(7) **Hydrocyanic Acid**. Tonic spasm in the muscles of the face, jaw and back, lock-jaw, impeded respiration with frothing of the mouth ; rigidity is firm, the body is bent backwards.

(8) **Hypericum**. Lock-jaw from injury to nerves especially spinal injuries.

(9) **Nux Vom**. The leading remedy in tetanus, the symptoms being convulsions, tonic, distortion of eyes and face with dyspnoea, excited by any external impression.

(10) **Physostigma**. Tetanic spasms, stiffness of spine and legs ; alternate contraction and dilatation of pupils is the chief symptom.

(11) **Stramonium**. Tetanic convulsions, spasms of glottis and chest, worse from light and touch.

(12) **Strychninum**. This drug produces a perfect picture of tetanus with respiratory spasm, cyanosed face and clear mind.

(13) **Mag. Phos** : It is the tissue remedy for Tetanus.

(14) **Passiflora**. Cures tetanus in hot countries and in horses.

ACUTE INFECTIVE POLYNEURITIS

(Landry's Paralysis)

Definition :

This is a severe and rapidly developing polyneuritis, often with facial diplegia after a somewhat featureless febrile illness. In fatal cases, it develops into a rapidly ascending paralysis. If recovery takes place, the severity of paralysis declines rapidly. There is hardly any sensory loss and pain.

Etiology and Pathology :

Exact cause is yet unknown, but it is believed that the cause of the affection is a virus. The disease affects males more than females. It is caused by inflammation with oedema of spinal nerves.

This disorder is polyradiculitis, the inflamed roots contributing protein to the cerebro-spinal fluid. It is because it is radicular that the muscles are uniformly affected, proximally as well as distally.

Symptoms and Signs :

(1) The onset begins with slight fever, headache and malaise, pain in the back and limbs.

(2) Coryza or gastrointestinal irritation.

(3) After 2 or 3 days, signs of polyneuritis develop.

(4) Proximal muscles are involved more than distal muscles.

(5) The trunk muscles are also involved, the face is bilaterally paralysed.

(6) Paralysis is of lower motor neurone type, flaccid, atrophic and with loss of tendon jerks.

(7) Sensory loss is very slight.

(8) Some times the spinal cord is affected to cause paraplegic symptoms and signs.

(9) The cerebrospinal fluid shows a very high rise in the protein content, but is otherwise normal.

Prognosis :

Death may ensue from paralysis of the respiratory muscles but recovery in majority of cases is fairly rapid.

Treatment :

The following remedies are suggested :

(1) Gelsemium 3X.

(2) Conium 30.

(3) Plumbum.

(4) Hydrophobinum 30.

XIII - DISORDERS OF THE EXTRAPYRAMIDAL SYSTEM, CHARACTERISED BY INVOLUNTARY MOVEMENTS

Paralysis Agitans (Parkinsonism)

Definition :

Paralysis Agitans (Parkinsonian disease) is a progressive insidious onset with a slow course, occurring usually in the second half of life, which is characterised in loss of movements by a peculiar stiffness of muscles, causing a distinctive facial expression, shuffling gait and boeily attitude. The stiffness is often accompanied by rhythmic tremors.

Etiology :

Very little is known of its cause. It is essentially a disease of the old age from 50 to 70 years. Men suffer twice as often as women. As it is associated with arteriosclerosis and hypotension, it may be due to the slower rate of flow of cerebral blood.

Symptoms and Signs :

(1) Paucity of movement and muscular rigidity are the first symptoms.

(2) The face, the neck, and the trunk are the most affected ; when the limbs have also become stiff, the proximal muscles show greater rigidity.

(3) As a result, the face assumes a fixed mask-like anxious appearance with the absence of usual involuntary nictitation (blinking of the eyelids).

(4) With the rigidity of muscles of larynx, tongue and lips, the voice becomes monotonous. In fact, with the stiffness of the neck and the trunk, the patient looks like a statue.

(5) Muscular weakness always accompanies rigidity and tremors.

(6) Tremor, which is usually present in most cases, begins in the hands, and is seen in the tongue, jaw, neck and face. It is a regular rhythmic contraction of muscles, and is increased by excitement and self-consciousness, and ceases during sleep.

(7) There is a constant discomfort, which results in lasting depression.

(8) Vasomotor disturbances, trophic changes in the periphery of limbs, thinning and glossiness of the skin are common.

Diagnosis :

The diagnostic points are :

(1) The general appearance of the patient has a fixed expression with a stooping attitude, round shoulders, the immobility of the head and neck and the curious gliding gait.

(2) The rhythmic rolling tremor.

(3) Absence of any disease of the motor system.

Prognosis :

The illness may remain for years in some cases, the average duration being 10 to 15 years.

Treatment :

Mercurius Sol. It is a remedy for paralysis agitans, if tremor is present. It may be followed by Hyoscyamus (Plumbum, if Mercurius fails).

- (2) **Rhus Tox.** For stiffness of limbs and a dragging gait.
- (3) **Antim Tart.** Chronic tremor of head and hands.
- (4) **Heloderma.** Tired feeling and cold sensation, left side most affected.
- (5) **Antim Crud** Thickly-coated white tongue.
- (6) **Atropine Sulph.** and *Zincum* are also principal remedies.

CHOREA (St. Vitus' Dance)

(Rheumatic Chorea)

Definition :

Chorea is a disease of involuntary movements which are irregular in time, in extent, in place of occurrence and in muscular weakness, with a variable degree of psychic disturbance. It is now a rare disease, but 25 years ago it was a common disease of childhood.

Etiology :

(1) The important causal factor of the ordinary variety is the acute or sub-acute rheumatism.

(2) It is common between the ages of 5 and 10 years ; while it is at its maximum between the ages of 10 and 15 years.

(3) Females are affected twice as frequently as are the males.

(4) A survey showed that rheumatism preceded chorea in about 26% of cases ; in 40% of cases rheumatic signs accompanied chorea or appeared subsequently.

(5) A determining factor may be any emotional disturbance, such as fright, anxiety, depression or overpressure in school, or disturbed home surroundings.

(6) In most cases first pregnancy (before the age of 25) appeared to be the only immediate cause of chorea. The onset of chorea was between the first and third months of pregnancy. It was liable to recur with subsequent pregnancies.

Pathology :

The essential lesion has proved difficult of detection by microscopical investigation. but it consists in a diffuse meningoencephalitis, affecting mainly the basal ganglia, the cerebral cortex and the pia arachnoid.

Symptoms and Signs :

The choreic movements are often preceded by alterations in the mental and physical condition of the child who tends to become more nervous and emotional, increasingly inattentive, clumsy in her movements and lets fall objects she is holding.

(2) The onset is usually gradual but it may be abrupt, if the cause is emotional disturbance.

(3) The involuntary movements are always irregular in time and in form. Each movement begins rapidly and ends suddenly. Most of the movements are complicated, involving several muscles and often more than one joint.

(4) The symptoms of a well-marked chorea are :

(a) involuntary movements,

(b) weakness of voluntary movements,

(c) ataxia or loss of precision of voluntary movements,

(d) emotional instability and other psychological disturbances e.g., failure of attention and depression, misbehaviour, laughing and weeping without reason, irritability, these symptoms usually disappear with chorea.

(5) The pupils are dilated.

(6) Often the knee-jerk shows an alteration which is peculiar to chorea.

(7) **Limp Chorea.** A severe form of choreic paralysis, is more often of hemiplegic distribution. The paralysis is characterised by complete flaccidity of the limbs.

(8) Cardio-vascular changes are common in chorea. Endocarditis is present in 90% of cases.

(9) Cutaneous affections which occur in rheumatism are met with in chorea also, such as erythema, purpura.

Diagnosis :

The diagnosis is usually easy, but occasionally a case of multiple tics does present difficulties. In chorea, the involuntary movements may lead to the dropping of objects from hands. This does not happen in case of tics. Again in the case of chorea, the

choreic subject gives the observer a firm and sustained hand-clasp, but the irregular waxing and waning of muscular contraction may be felt throughout by the observer. In a case of *tics*, however, the contraction is steadily maintained like normal subjects.

Prognosis :

The disease ends spontaneously after a few weeks to six months. The disease may, however, last for a year and some cases with remissions may last for several years (relapsing chorea).

Treatment :

(1) **Agaricus.** For muscular spasmodic twitchings of eye-balls and eyelids ; it has angular choreic movements and spasmodic motions of alternate extremities ; unsteady gait, emaciation and idiotic expression of face. Considerable congestion of the head, dilated pupils, and flushed face are characteristic.

(2) **Tarentula cubensis.** When the choreic movements affect the right arm and right leg. (*Tarentula Hispania* when chorea is brought on by fright and grief etc.). The patient is restless and compelled to keep constantly in motion. The spine is weak and there is trembling.

(3) **Ignatia.** For chorea of young girls of emotional origin.

(4) **Arsenicum.** For stubborn cases it is useful, when there is much uneasiness in legs, must change position and walk about for relief, chorea of debilitated children.

(5) **Zinc.** It has restless choreic movements during sleep.

(6) **Laurocerasus.** It is useful in chorea after fright. Speech is indistinct.

(7) **Crocus.** Chorea with hysterical symptoms, twitching of single muscles.

(8) **Cimicifuga.** When the movements affect the left side, and are associated with myalgia or rheumatic ailments or when reflex from uterine derangements. Sleeplessness is the important symptom.

(9) **Calcarea.** It is a good remedy to correct malnutrition. Chorea is generally caused in *calcarea* children by fright, or onanism.

(10) **Belladonna.** The jerking is backward, the head is bored into the pillow. Besides, there are constrictions. hyperaesthesia and bodily inquietude.

(11) **Pulsatilla.** Chorea, due to amenorrhoea or dysmenorrhoea.

(12) **Stramonium.** For chorea, when the brain is affected *e.g.* the patient now laughs, and now he appears astonished, protrudes his tongue, extremities in constant motion, easily frightened and stammering.

(13) **Hyoscyamus.** Gives results in twitchings of eyelids better than *Agaricus*.

(14) **Mygale.** In uncomplicated cases, when a patient is low spirited and depressed and the muscles of the face twitch constantly.

(15) **Causticum.** When the right-sided muscles of the face, tongue, arm and leg are all involved. The patient is excessively nervous.

HUNTINGTON CHOREA

(Hereditary chorea of Adults)

Definition and Etiology :

This is a heredito-familial disease in which symptoms almost identical with those of rheumatic chorea *i.e.*, involuntary spontaneous movements, ataxia, paresis and slow and slurring articulation gradually appear in adult life, usually about the age of 40 years, and are accompanied by progressive mental failure and personality changes with disturbed social behaviour.

The chronic movements may be severe, and incoordination marked. The disease progresses slowly to death in 5 to 30 years. General health is not affected, but the patients are always thin because of the high total metabolic rate caused by the involuntary movements.

It is a familial disease. The transmission is dominant and direct from parent to child, but if a generation escapes, it does not seem to reappear. Sporadic cases in which no heredity can be traced, do occur. Both sexes are equally affected. No causal factors are known.

The morbid anatomy consists in a slow progressive degeneration of the nerve cells of the basal ganglia and of the cerebral cortex with consecutive atrophy of the convolutions, neuroglial overgrowth and meningeal thickening.

Treatment :

See under "Chorea"

SPASMODIC TORTICOLLIS

(Stiff Neck)

Definition :

It consists of tonic movements of the superficial and deep muscles of the neck, causing the head to assume either a position in which it is turned to one side and upwards, or one of marked retraction (retrocollic spasm). It is a disturbance of movements rather than of muscles, and perhaps, may be thought of as a disorder in the carriage of the head.

Etiology :

The disorder is most often seen in the middle aged or in the elderly. It is twice as common in women. The causation is obscure. A striking feature of the etiology of disorder is the association in the same patient of psychogenic or physiogenic factors. The movements may occur in patients with other involuntary movements, which suggest disease of the basal ganglia, and the arm may be involved in the disorder. This disorder affects predisposed individuals. In a few cases it has developed from an occupational neurosis. It developed, for instance, in a tailor who in drawing each stitch had the habit of making a short jerking movement of the head to one side. It occurs occasionally as a symptom of hysteria. A torticollis movement may occur as a variety of tic. Typical torticollis may occur as the end result of lethargic encephalitis.

Symptoms and Signs :

(1) The onset is usually insidious, but in some cases may be quite sudden.

(2) The initial symptom is always spasm, either tonic or clonic. Frequently both are combined in the same case.

(3) The spasm always involves muscles of both sides of the neck. In some bilateral cases, the rotation of the head does not recur, but it does become strongly retracted, and the condition is then known as *retrocollic spasm*. This is always accompanied by marked overaction of the frontales, the skin of the forehead being thrown into wrinkles. The eyes do not follow the movements of the head. The muscle primarily involved is the sternomastoid, the action of which is to incline the head forwards and towards the shoulder of the same side, and rotate the face to the opposite side.

(4) The next muscle involved is the splenius of the opposite side which inclines the head backwards and rotates the face towards its own side.

(5) Next to be affected are the upper parts of the trapezii and the deep neck muscles.

(6) Further spread of the spasm may affect any neighbouring muscle of the shoulder and upper extremity.

(7) Sleep causes cessation of the spasm which is always increased by fatigue and excitement.

(8) There is no wasting of the muscles, but they may become hypertrophied.

(9) Pain varies with the spasm. There might be a slight feeling of cramp or there might be a great deal of aching pain, which may radiate to the head or down the arm. Rarely sharp neuralgic pains are present.

Prognosis :

The disease does not shorten life and in course of time becomes chronic. Recurrence after temporary cure is common.

Diagnosis :

This is quite simple. Fixed positions of the head associated with spasm occur in disease of the cervical spine, especially in spinal caries, and are also associated with enlarged lymphatic glands in the neck. The local signs of these conditions are, however, characteristic.

Treatment :

(1) **Aconite.** Stiff neck from a draught or chill, tearing pain in the nape, worse in morning ; pain extending down the neck into the shoulder.

(2) **Antimonium Tart.** Stiff neck stretched out, head bent back.

(3) **Bryonia.** Painful, stiff neck, greater by touch or motion.

(4) **Chelidonium.** Pain and stiffness in the right side.

(5) **Cimicifuga.** Head and neck retracted ; rheumatic pain and stiffness.

(6) **Dulcamara.** From damp and cold ; pain in the nape of neck, as one feels after lying with the head in an uncomfortable position.

(7) **Rhododendron.** From dry cold, the pain increases on the approach of stormy weather.

(8) **Lachnantes.** A remedy for torticollis with rheumatic symptoms, neck drawn to one side by sore throat.

THE TICS OR HABIT SPASMS**Definition :**

Tics are involuntary movements, characterised by the occurrence of :

(1) Sudden, rapid, twitch-like involuntary coordinated movements, always of the same nature and in the same region ; or

(2) Sudden, psychological events, imperative ideas and explosive utterances ; or

(3) A train of deliberate highly coordinated actions, produced by an imperative idea. Any combination of these phenomena may occur.

Etiology :

The tics are both etiologically and clinically related to spasmodic torticollis, into which some of the motor tics graduate. A torticollis movement may occur as a tic, and it may, in rare cases, pass over into an established torticollis. The patients show the same personality characteristics.

Classification :

The tics may be conveniently divided for clinical purposes into the following groups, between which any combination may occur.

(1) **Simple Tic.** This form occurs chiefly in children and usually runs a favourable course. This is a common disorder of late childhood, most cases occurring between the fifth and tenth year in both sexes equally. The onset may be produced by poor health, and sometimes fright and emotion bring on the tic. But often it affects perfectly healthy children without assignable cause. The children are usually 'highly-strung' and intelligent. It is a rare event to see a backward child with a tic.

Symptoms :

(1) Simple tics occur suddenly and without warning and are executed rapidly. Usually the movement is of one kind only. But sometimes several movements coexist.

(2) The common site of the spasm is the head, face or neck.

(3) Blinking, winking, alternate elevation and depression of the eyebrows, side to side movements of the mouth, tossing the chin in the air, sudden movements of the tongue, palate or larynx, accompanied by an unpleasant fidgeting sound are of frequent occurrence, while any movement of the head upon the shoulders, torticollic movements, shrugging of the shoulders and any movement of the arms may be met with.

(4) Respiratory movements are often associated with those occurring in the tongue and larynx.

(5) Tics affecting the legs are much less common.

(6) The movements cease during sleep.

(7) They are increased by excitement and by observation and can usually be controlled by the will, but only for a limited time.

Diagnosis :

The movement of tic is so peculiar that it cannot usually be confused with any other spontaneous involuntary movements. Tic movement is repeated with rapid execution in the same place. They

are short and sharp, like a twitch. In *chorea*, the movements are slow compared with those of tic, and are irregular in nature, in time and in place.

(2) **Convulsive tic.** In this form, the same movements, as are seen in simple tic, occur. But they involve the whole body in spasm at one time. There are also *psychic tics*, which cause irresistible impulses among which are explosive utterances, repetition of words, sounds and gestures and also imperative ideas.

Symptoms :

(1) The spasmodic movements, resemble at first those of simple tic in their nature and rapidity and favour the same sites ; but they are not restricted to the repetition of the same movement. Successive movements may vary widely in position and extent and sometimes involve the whole musculature of the body.

(2) The great variety of facial grimaces, head jerking, grotesque attitudes and ridiculous gestures may occur in this affection.

(3) This tic is not continual as in the simple form.

(4) These are often excited by observation and emotion.

(5) Between the attacks, the patient seems quite normal.

(6) The psychological phenomena are the same as in psychical tic, described below.

(3) **Psychical tic.** There is no muscular spasm here. But the sudden event takes the form of explosive utterances, imperative ideas and impulsive acts. The condition often occurs as a part of convulsive tic. The *exclamatory tic* consists of some sound or word or group of either, which is habitually uttered, with complete irrelevancy of time, place or sense. Sometimes the words are of an obscene nature and cause the greatest distress to the patient. The utterances may be single, or repeated over and over in rapid succession. Echolalia, which is an uncontrollable impulse to repeat sounds heard, or to repeat words which the patient or others have just spoken may be met. These may also be imperative ideas and impulsive acts and in general the symptoms of a severe obsessional state.

Diagnosis :

In both the convulsive and psychical tics, the diagnosis is obvious on account of the nature of movements and the peculiarity of the psychic disturbance.

OCCUPATIONAL NEUROSES OR CRAMPS

Definition :

This disorder, which is now uncommon, is determined by the habitual use of one set of muscles for the constant repetition of an act of short range, to the exclusion of acts of wider range and acts, involving a different set of muscles. The symptoms are local pain and spasm in the muscles concerned with weakness, and loss of volitional control of the range and nature of the movement.

Etiology :

(1) The disorder is apt to arise in any occupation, involving rapid, repetitive movements of short range by a small portion of the body, especially the hand, as in occupations of manual writers, typists, telegraphists, musicians, seamstresses and many others. The movements concerned are always acquired and require a high degree of precision and co-ordination.

(2) These movements become so automatic that in health they are carried out without attention and almost sub-consciously, while the performer's thoughts are concentrated on other aspects of work.

(3) The disorder appears, when the individual is called upon to exceed a certain level of performance, or after any physical physiological event which may lower the performer's level of efficiency.

(4) A rigid punctilious temperament is sometimes responsible for the cramps while doing the work neatly, precisely and conscientiously.

(5) It is not right to say that the disorder is due to structural change or uncomplicated physical fatigue.

(6) On the other hand, the view is that it is psychogenic. It only occurs in subjects who, by their vocation and by their temperament can perform accurately repeated minute movements almost indefinitely.

Symtoms and Signs :

(1) The symptoms are : discomfort, pain and sense of fatigue.

(2) The signs are : muscular spasms and the abnormalities of

movements arising from them and from the effort to avoid pain and spasm. In some subjects pain, and in others spasm predominates.

(3) The onset is gradual.

(4) Some tremor may develop in the limb.

Diagnosis :

From what has been said above about the character of symptoms in the form of cramps and their mode of occurrence, errors of diagnosis should not occur. Nevertheless when *Paralysis agitans* and *post-encephalitic Parkinsonism* are present they provide fruitful sources of error. In the clinical picture, the initial symptoms may involve the right arm and hand, and at first consist of a difficulty in the normally rapid and free performance of the fine movements. Not unnaturally, the handwriting may be affected early. It becomes slow in performance, spidery and progressively smaller, and the effort to continue writing may be irksome and even painful. The total clinical picture in such a case is made up of small deviations from the normal.

Treatment :

Gelsemium and *Cuprum*, are the main remedies. The patient must, however, stop the occupation for sometime to give relief to pain and discomfort.

XIV—DEMYELINATING DISEASE

Introduction :

Loss of myelin sheath occurs with many disorders of the central and peripheral nervous systems, but there is a particular category with certain clinical and pathological features in common in which loss of myelin is considered to be the primary change and the axis cylinders may be spared, or if effected, are damaged secondarily. The lesions are almost entirely confined to the white matter of the central nervous system. They are, initially, inflammatory in type but differ from lesions, known to be caused by direct viral infection, and so they are grouped together separately. Their nature is uncertain, but there are reasons for considering that they may be caused by an 'auto-immune' process which damages the myelin-forming cells.

DISSEMINATED SCLEROSIS

Definition :

Disseminated Sclerosis is a common incapacitating disease of healthy, young adults and is usually characterised by an intermittent course which depends upon the acute development of multiple inflammatory foci in the cerebrospinal axis.

Etiology :

(1) In most cases there is no family history but familial disseminated sclerosis is well-recognised.

(2) Topographical studies of the occurrence of the disease show a distribution which suggests that there is an environmental factor in its etiology.

(3) Both sexes between the ages of 18 and 30 are affected. The disease is rare after the age of 55.

(4) The cause is still wholly unknown. There is no evidence to show that the disease is directly due to the action of a filtrable virus.

(5) The signs of inflammatory reaction in this disease are compatible with the view that it is infective in origin, but it behaves like no known infective disease.

(6) Intensive research into its nature indicates that there are factors inherent in the subject as well as in his environment.

(7) The present generalisation is that the initial attack may be precipitated by unusual fatigue, trauma, infection, severe cold and allergic reactions.

Symptoms and Signs :

(1) The first symptoms are often slight and fleeting or they may first appear in one part and then in another.

(2) Certain symptoms and physical signs, however, appear with remarkable regularity, so that it is easily recognised in at least more advanced stages.

(3) The optic nerve is a common site for the development of an area of the disease.

(4) **Motor symptoms** are : heaviness or stiffness in one or both legs followed by weakness ultimately ending in spastic paraplegia.

(5) The physical signs are those of pyramidal lesions in general—increased tone in the muscles and exaggeration of the tendon reflexes, diminution or loss of the abdominal reflexes and extensor plantar responses.

(6) The characteristic tremor appears in the arms on voluntary movement only and increases in rate, amplitude, and is called “intention tremor”. It may be first noticed in performing delicate movements, such as, threading needle.

(7) Besides, intention tremor, other types of incoordination of the limbs are occasionally seen, such as, those of the optic thalamus or of the mid-brain or of the cerebellum.

(8) **Sensory symptoms** are : numbness and tingling in the extremities and alterations in the sensations of various parts. They are often transient and may be the only symptoms in the initial-stage.

(9) Many patients complain of aching in the limbs and in the back.

(10) Occasionally intense neuralgic pain of trigeminal nerve distribution is found.

(11) Cutaneous sensory loss is uncommon, though sensation of some areas of skin is, on examination, found impaired. In many cases, the sense of position and passive movements in the limbs is seriously affected.

(12) **Ocular symptoms** : double vision, nystagmus, visual failure are common.

(13) **Mental symptoms** : defective memory, slight impairment of intellectual power (dementia, rarely) are common.

(14) **Sphincter Disturbances**. Control over rectal sphincter is rarely lost, and the act of micturition is inhibited.

(15) **Other symptoms** : deafness, giddiness and tinnitus, sometimes with repeated vomiting; the lesions are multiple.

(16) **Cerebrospinal fluid**. In many cases it is normal. In others, there may be moderate increase in protein. Examination shows the presence of sphyngomyelin, due to the damage of the long tracts.

Diagnosis :

This disease should be diagnosed in its initial stages and can be confirmed from the following indications, viz.,

(1) Involvement of the pyramidal tracts is proved by increased tendon jerks, extensor plantar reflexes, absent abdominal reflexes, a little weakness of one or both feet and some degree of impairment of the lower limbs.

(2) In later stages, the diagnostic signs are : spastic weakness of the legs, intention tremors, nystagmus and scanning speech. At whatever stage this disease comes under observation, the history of illness is important.

Diff. Diagnosis :

It has to be distinguished from :—

(1) **Compression of the cord.** When the signs in disseminated sclerosis are purely spinal, the diagnosis from *Spinal tumour* is difficult. The first may be mistaken for the latter, when the paralysis increases steadily and is associated with sensory loss extending upwards to a definite level, while a reverse error may be made, if the symptoms caused by a tumour are purely motor or vary in intensity, or are associated with nystagmus.

(2) **Cervical spondylitis.** In the middle-aged and elderly subjects it may give rise to a fluctuating lesion of the cerebral cord causing an advancing spastic paraplegia, closely resembling the course of disseminated sclerosis in middle life. There is some evidence indeed that the damage to the cord caused by the vertebral lesion may produce demyelination.

(3) **Friedreich's ataxia.** This may be suggested by the presence of ataxia in a young patient with disseminated sclerosis. The distinction can be made at once, for in the latter disease, the tendon reflexes in the lower limbs are exaggerated, whereas they are lost early in Friedreich's ataxia.

Treatment :

The following remedies are suggested :—

(1) *Argentum nitricum.*

(2) *Lathyrus*

- (3) Plumbum.
- (4) Atropine.
- (5) Baryta Carb.
- (6) Oxalic acid.
- (7) Physostigma.
- (8) Phosphorus.
- (9) Strychninum.

SECTION II

DISORDERS OF VOLUNTARY MUSCLES

Myopathies

Disorders of voluntary muscles are not diseases of the nervous system, but as some of their manifestations may be readily confused with neurological conditions, some relevant examples are described here. There are obvious exceptions, but it is a useful generalisation that muscular disease affects mainly the proximal muscles of the limbs, whereas neuropathic disease affects the distal muscles.

Myopathy is a generic term, summing up all primary diseases of muscle. It may be subdivided into

- (1) **Genetically determined myopathy :**
 - (a) Progressive muscular dystrophy.
 - (b) Myotonic dystrophy.
- (2) **Congenital myopathies.**
- (3) **Metabolic myopathies.**
- (4) **Inflammatory myopathies or myositis.**

(1) GENETICALLY DETERMINED DYSTROPHY

(a) Progressive Muscular Dystrophy

This is a group of hereditary disorders, characterised by progressive degeneration of muscles without involvement of the nervous system. The wasting and weakness is symmetrical ; there is no fasciculation (bundling-up) ; tendon reflexes are preserved until a

late stage and there is no sensory loss. Several clinical types are described, but from a progressive point of view, three major groups can be distinguished :

(1) Pseudo-hypertrophic Type (Duchenne type) :

This is transmitted by a sex-linked recessive gene occurring almost exclusively in males. The disease usually occurs within the first three years of life, beginning in the pelvic girdle and lower limbs and later spreading to the shoulder girdle. About 80% of cases show an initial pseudo-hypertrophy involving the calf muscles, quadriceps (thigh) glutei (buttocks) deltoids and infra-spinal muscles. Contractures are common. The affected muscles are larger and firmer than normal, but are nevertheless weak. The weakness gives rise to a characteristic waddling gait, and when rising from the supine (lying on back) position, the child rolls on to his face and uses his arms to push himself up. Death occurs from inanition or respiratory infection by the middle of the second decade.

(2) Limb Girdle Type (Juvenile Scapulo humeral Type of Erb) :

The gene carrying this disorder is inherited as an autosomal recessive, affecting both sexes. It usually appears in the second or third decade. It starts in either the shoulder or the pelvic girdle and later spreads to involve both. The rate of progression is variable ; it may be slow with long periods of arrest, but severe disablement usually occurs within 20 years and the patient does not survive to middle age.

(3) Facio-Scapulo-Humeral Type (Landouzy-Dejerine)

This type is inherited by an autosomal dominant gene, so that several sibilings of both sexes may be affected. It appears at any age, first in the facial muscles and then in the shoulder girdle. After many years the pelvic girdle may also be involved. The disease progresses very slowly with periods of arrest and is incompatible with long life.

Diagnosis :

Hereditary muscular dystrophy must be distinguished from :

(a) Congenital myopathies.

(b) **Acquired myopathies** in which treatment is possible and from

(c) **Diseases of the lower motor neurone.**

Acquired myopathies occur alone or as a part of endocrine disease or carcinomatous myopathy. Spontaneous recovery may occur.

Diseases of the lower motor neurone : From which dystrophy must be distinguished are :

(a) Motor neurone disease which is associated with muscular fasciculation,

(b) peripheral neuropathy in which there is distal involvement of muscles and sensory loss.

(c) Residual poliomyelitis which is commonly mistaken for muscular dystrophy, if the history of the acute illness is not known, but the lesions are asymmetrical and not progressive.

The diagnosis of muscular dystrophy is confirmed by electromyography (EMG) or muscle biopsy. Aldolase and other enzymes are increased in the intracellular serum, especially in the rapidly advancing Duchenne type. Serum enzyme changes may be found before other clinical signs, enabling early detection of the disease of siblings. Less severe changes of the same type are found in women who carry the abnormal gene of Duchenne type.

Treatment :

General : Excessive confinement to bed should be avoided.

Curative : **Phosphorus** and **Plumbum** are to be given in higher potencies periodically as directed by the physician. These will be very helpful in acquired cases.

(b) MYOTONIC DYSTROPHY OR DISORDERS

Myotonia is the continued act of contraction of a muscle which persists after the cessation of voluntary effort or stimulation. Clinically it is best demonstrated as a slowness in relaxation of the grip or by a persistent dimpling after a short blow on a muscle belly. It seems to be due to an abnormality of the muscle fibre, as it persists

after section or blocking of the motor nerve and after curarization. It occurs in three hereditary syndromes namely :

- (i) Myotonia Congenita.
- (ii) Dystrophia Mytonica.
- (iii) Paramyotonia.

(i) MYOTONIA CONGENITA

(Thomson's Disease)

The condition is usually present from birth, but symptoms may not appear until the end of the first decade. Myotonia is generalised, accentuated by rest and by cold and gradually relieved by exercise. In infancy, these children are often difficult to feed and have a peculiarly strangled cry. Later, myotonia of the tongue may give rise to difficulty in speaking. Diffuse hypertrophy of muscles usually persists throughout life, though the myotonia tends to improve with increasing age ; rarely it increases during exertion (myotonia paradoxa).

(ii) DYSTROPHIA MYOTONICA

Dystrophia mytonica (mytonia atrophica) is a systemic disorder in which mytonia and distal muscular atrophy are accompanied by cataracts, frontal baldness in the males, gonadal atrophy, cardiomyopathy, impaired pulmonary ventilation, mild endocrine anomalies, bone changes, mental defect or dementia, and other abnormalities. The affected families show progressive slow decline in successive generations, diminished fertility, and an increased infantile mortality rate. The condition is as common as muscular dystrophy of the Duchenne type.

The presenting symptom is usually weakness of the hands and difficulty in walking, and myotonia is rarely obstrusive. Poor vision, weight loss, impotence, ptosis, and increased sweating are common. More commonly the condition begins between the ages of 20 and 50 years.

The facial appearance is characteristically long and haggard. Wasting of the masseters, temporal muscles and sternomastoids is

invariable, and in the extremities, weakness and wasting involves particularly forearm muscles, the tibial group and the calf muscles. There is cataract in most cases, Cardiac involvement is common. Pulmonary vital capacity is often impaired. The testes are usually small. Females show irregular menses, infertility and prolonged parturition. Both mental defects and dementia occur. There may be occasional functional failure of adrenal glands and thyroid activity.

(iii) PARAMYOTONIA

This condition is characterised by myotonia which appears only on exposure to cold. In addition, patients experience attacks of generalised muscular weakness like those of familial paralysis, but in these attacks, the serum potassium usually rises. Myotonia in the upper eyelids on looking upwards may be prominent in these cases.

Diagnosis of Myotonia :

Myotonia must be distinguished from the slowness of muscular contraction and relaxation which may occur in hypothyroidism and from the similar clinical phenomenon of delayed relaxation with prolonged dimpling on percussion of muscle which may occasionally be seen in patients with polymyositis, polyneuropathy and spinal muscular atrophy. These various disorders may be distinguished with confidence by EMG. The serum creatine kinase activity is normal in myotonia congenita and paramyotonia, but they may be raised to between 2 and 10 times the upper normal limit in myotonic dystrophy.

(2) CONGENITAL MUSCULAR DYSTROPHY

This is a rare disease, and presents with severe and generalised muscular hypotonia which is noted from birth and which is followed by the subsequent development of progressive muscular wasting and weakness. In many affected children, there are wide-spread contractures. Occasionally, the muscular weakness increases rapidly after

birth and the disease terminates fatally with him the first year of life, but there are other cases in which the condition appears non-progressive. Few affected patients are ever capable, however, of sitting or standing unsupported, and the prognosis is uniformly unfavourable.

Diagnosis from spinal muscular atrophy of infancy can only be made with confidence by means of EMG, serum enzyme studies and muscle biopsy. The occasional involvement of siabilings supports the suggestion that this rare disorder may be due to an autosomal recessive gene. It may be distinguished from various benign congenital myopathies, first by its severity and secondly by the fact that in this condition, the histological changes in muscle biopsy specimens are similar to those observed in other forms of muscular dystrophy.

(3) METABOLIC MUSCULAR DYSTROPHY

Many conditions are associated with muscle disease. Among these the more important are :

Thyrotoxic Myopathy :

Mild weakness of proximal muscles of the limbs is a common feature of thyroxicosis. In a few patients muscular wasting and weakness predominate and the other manifestations of hyperthyroidism may not be obvious.

Corticosteroid Myopathy :

Weakness of the pelvic girdle may occur in *Cushing's syndrome*, and as a result of treatment with corticosteroid hormones (allopathically).

Familial Periodic Paralysis :

This is characterised by attacks of profound weakness, lasting for several hours, and often occurring after a heavy carbohydrate meal. In the common variety, the attacks of weakness are accompanied by a fall in serum potassium level.

(4) INFLAMMATORY DISEASES OF MUSCLE

(Myositis)

Muscles may be involved secondarily by suppuration arising in skin, bone or connective tissue, and extensive necrosis may follow trauma as a result of infection with the anaerobic organism of gas gangrene. Acute myositis can result from infection with the viruses of Coxsackie group, in Bornholm disease ; pain in the trunk muscles and particularly in the chest wall, related to deep breathing and coughing, occurs, but the disorder usually recovers spontaneously within a few days. In trichiniasis (tapeworm disease), due to the infected pork, fleeting muscle pain and tenderness may be accompanied by peri-orbital oedema, and the infected organism is sometimes detectable in muscle biopsy.

MUSCULAR INVOLVEMENT IN COLLAGEN OR CONNECTIVE TISSUE DISEASES

In rheumatoid arthritis, muscle biopsy sections may demonstrate foci of inflammatory cell infiltration, but this focal nodal myositis is not usually accompanied by specific muscular wasting and weakness, save for that resulting secondarily from joint disease.

In sarcoidosis, however, muscle involvement may cause sub-acute weakness and wasting of proximal muscles and typical sarcoid granulomas may be observed on muscle biopsy. Localised muscle pain, sub-cutaneous oedema and tenderness can occur as a result of muscle infarction in polyarteritis nodosa. In systemic lupus erythematosus, muscular involvement is sometimes severe and diffuse and is [then indistinguishable from polymyositis, although in occasional such cases muscle biopsies demonstrate vacuolar myopathy. (a vacuole is a small air-cell).

POLYMYOSITIS

Definition :

The term is generally used to identify a group of cases in which muscular weakness and wasting may be associated with muscle

pain and tenderness or with evidence of some form of connective tissue or collagen disease. The term also indicates an idiopathic syndrome and excludes disorders, such as, polymyalgia rheumatica and acute myositis resulting from infections with micro-organisms and viruses. Most cases of *carcinomatous myopathy* probably belong to the syndrome of polymyositis.

Etiology :

Polymyositis is world-wide, occurs in many races and appears to be common in men. It is more common in adult life than muscular dystrophy, but is less common than the latter in childhood. About 15% of cases occur under the age of 15 years, another 15% between the ages of 16 and 30, about a quarter between 31 and 45, and a third between the ages of 45 and 60. It usually develops spontaneously, and may also on occasions be the result of a conditioned auto-immune response in patients suffering from cancer. It can follow febrile illness, or the administration of various allopathic drugs including sulphonamides.

Classification :

There are four clinical categories of polymyositis :

Group I :

Acute, sub-acute or chronic polymyositis.

Group II :

Polymyositis with dominant muscular weakness, but with some evidence of collagen disease or dermatomyositis with severe muscular disability and with minimal or transient skin changes.

Group III :

Polymyositis complicating severe collagen disease *e.g.* rheumatoid arthritis, or dermatomyositis with florid and skin changes and minor muscle weakness.

Group IV :

Polymyositis complicating malignant disease (including 'carcinomatous myopathy').

Symptoms and Signs :

(1) Most cases run a sub-acute or chronic course, but occasionally acute cases are seen with pain in muscle, fever, constitutional upset and rapidly progressive paralysis.

(2) Dysphagial muscle pain and tenderness occur in 50% of cases.

(3) Cutaneous manifestations are seen in two-third of all patients, and may take the form of widespread erythema with desquamation particularly on the face and on other exposed parts of the trunk ; sometimes it involves the whole body.

(4) Raynaud's syndrome is a common association.

(5) In about 25% of patients, joint pain and stiffness occur at some stage ; neck muscles are characteristically involved in two-thirds of cases, so that patients may have a difficulty in holding up the head.

(6) Weakness may be generalised in about one-third of cases.

(7) Contractures sometimes develop ; facial weakness and involvement of ocular muscles are rare.

(8) The deep tendon reflexes may be depressed in the affected muscles, but are often surprisingly brisk despite the severity of weakness.

Diagnosis :

Generally the clinical picture is characteristic. But with the involvement of the skin and joints in sub-acute cases, the diagnosis may be mistaken for muscular dystrophy or for various forms of metabolic myopathy. The rise in metabolic rate may cause confusion with thyrotoxic myopathy. But the radioactive iodine uptake is normal. The pattern of muscular involvement does not show the selectivity characteristic of muscular dystrophy ; the serum potassium, calcium and phosphorus are normal, and signs of associated endocrine disease are absent. The serum creatine kinase activity is often greatly raised in acute and sub-acute cases. EMG demonstrates a myopathic pattern of volitional activity. Muscle biopsy generally demonstrates widespread necrosis.

Prognosis :

Progressive demonstration with a fatal termination within a few weeks is seen particularly in acute dermatomyositis. But spontaneous recovery may occur in childhood.

Treatment :

Inflammatory Muscles. Bryonia ; Merc. Sol. and Rhus Tox ; *Muscle pain* : Arnica ; Aconite ; Bryonia ; Cimicifuga ; Gelsemium, Rhus Tox ; Ruta.

Weakness of Muscles. Gelsemium ; Picric acid ; Kali Phos ; Mur. acid ; Zinc metallicum.

CHAPTER—XI

DISORDERS OF THE MIND

*(PSYCHONEUROSES, PERSONALITY DISORDERS, FUNCTIONAL,
ORGANIC AND AFFECTIVE PSYCHOSES)*

CHAPTER—XI

QUESTIONS FOR THE STUDENT

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Psychological Diseases

I—Symptomatology of Mental Illness

Psychiatric History :

The examination of a patient by psychiatry reveals no physical signs too often. The laboratory examination is negative. In such circumstances the clinician should rely on patient's history and background.

The first essential in taking a good psychiatric history is to help a patient to express what is really torturing him. A skilled interviewer has very little to say himself. He prompts the patient by skilful questioning to talk and tell why he needed to consult a doctor. Was it really for his constipation, breathlessness, headache or fits of depression etc. ? Often an inarticulate encouraging murmur is enough to help the patient to bring out more relevant information. Although the interviewer is advised to speak as little as possible, he must convey a real interest in what the patient has to tell him. Above all, the interviewer must not let the patient feel that he has been in any way shocked or roused to anger or contempt. If the patient sometimes backs out from expressing painful feelings and starts talking about trivialities or engages the interviewer in a social conversation, it becomes necessary to take the patient back to the sensitive topic simply by repeating his own words and then let him start the topic again.

After this interview has yielded some clues about the patient's anxieties and the social situations in which they occur, the interviewer should ask questions about the family setting, his early years, his relationship with parents, and other cognate matters in his household. This is necessary because a great majority of cases of emotional disorders, and the faulty training which finds expression in symptoms, dates back from childhood in painful experiences.

This should be followed by asking questions on schooling and his occupational career. By this time, the interviewer should have gained the confidence of the patient sufficient to be able to broach sometimes upon more embarrassing questions on important topics of his sexual development and his emotional involvements with other people, without showing any sign of shock or disturbance in his mental attitude. Instead he should maintain a lively interest in the patient by controlling his own feelings and reactions.

In short, the interview should begin with some physical complaints like constipation, backache or dyspepsia, and then pass on to painful feelings and memories. It is possible that dyspepsia may be provoked by painful experience with his boss, and this in turn may recall painful relations with one's father. The investigation, however, may be incomplete, unless these factors have been elicited and further explored. At the same time, it is necessary to complete the findings by taking details of his present symptoms to decide what investigations are necessary.

Current Mental State :

Patient's Behaviour : During the interview, the patient's behaviour is partly verbal and partly non-verbal. His intellectual level can be judged from the choice of words he uses and from the ease or difficulty with which he expresses himself. If there is reason to suspect that he is mentally backward, one can test his general information by posing further questions, by asking him to name the Prime Minister, the capitals of larger countries or to perform simple sums of arithmetic. The best clues to mental retardation are given by the patient's scholastic records and by the type of job he has been able to perform in adult life. Some patients talk rapidly and jump from one topic to another and lose the main thread of their conversation ; while others talk slowly and in dull flat tones which reveal melancholy.

The non-verbal behaviour is noticed by his attitudes and gestures during the talk—whether he is tense and restless or heavy and slow. Sometimes one may be struck by a man's unusual dress or a woman's make-up. Before jumping to any conclusion, one has

to be sure that the oddity is indeed an individual one, and not merely the latest twist of the teenage fashion.

The Patient's Mood :

It is necessary to learn whether the patient feels cheerful or depressed, confident and fearful, suspicious or bewildered. Many patients need some help before they can unburden themselves of fears, anxieties or feelings of intense unhappiness. Besides recognising these painful feelings, one has to recognise whether there is any lack of emotional involvement of any kind, which is characteristic of the schizophrenic. Sometimes these patients themselves complain of their inability to experience emotions in the way they used to do. At other times, one may notice lack of real warmth in human contact with the patient, thus making it possible to conclude that the patient may be a schizophrenic.

Patient's Abnormalities in Thought Processes :

First, the patient should be tested for his *orientation* for time, place, and person. In other words, we should note whether he knows the date and time of the day and recognises where he is and to whom he is talking with. Again he should be asked whether he remembers the name and address or a telephone number and later tested whether he can repeat it after an interval of one or two minutes. Some patients, however, show perfectly good memory, and yet show profound mental disturbances, such as, *hallucinations* (that is, they have perceptions of sight, sound or touch with all the vividness of reality, in the absence of any external stimulus) and *delusions* (that is, they express fantastic, illogical beliefs which are not shared by other people in their surroundings, and hold to these beliefs in spite of the assurance and demonstrations of their falsity). Finally it should be assessed whether the patient has any insight into his illness or he merely blames the environment and his fellows for it.

II—CLASSIFICATION OF PSYCHIATRIC ILLNESS

The broad classification of patients suffering from mental illness is made into two principal divisions :

- (a) Neurotic or psycho-neurotic patients.
- (b) Psychotic patients.

A patient is neurotic or suffering from psycho-neurosis, if he has a fair insight into his illness, unlikely to need care and attention in an institution or hospital. But if he suffers from psychosis, contrary is the case.

Under these two main groups, it becomes easy to enlist various mental illnesses.

Group A :

Psychoneurotic or Neurotic disorders and personality disorders or non-psychotic mental illness e.g. anxiety neuroses or states, hysteria, obsessional disorders, infantile disorders (emotionalism etc.), idiocy or feeble-mindedness.

Group B :

(a) Functional psychoses consisting of :

- (i) Schizophrenia.
- (ii) Paranoid states.
- (iii) Affective disorders—manic depressive and mild depressive states.

(b) Organic or symptomatic psychoses consisting of :

- (i) Neurasthenia.
- (ii) Epilepsy.
- (iii) Delirium and sub-delirium states.
- (v) Dementia, degenerative, senile and pre-senile.

Note :

For psychotic disorders with :

(1) Infections and toxæmias, such as, encephalitis, tetanus, etc. see under "Nervous System."

(2) Metabolic and endocrine diseases, such as, diabetes mellitus, see chapters (IV) and (VI).

(3) Drug dependence e.g., alcoholism, opium etc. see chapter I.

(4) For neurosyphilis, such as, general paralysis of the insane see chapter X.

GROUP A

III—PSYCHONEUROSES AND PERSONALITY DISORDERS

Anxiety States

Definition :

Anxiety neurosis may be defined as a state of anticipation of something unpleasant about to happen, accompanied by a feeling of inner tension and bodily manifestations, such as, tense muscles, sweating, tremor and tachycardia. Although anxiety is a symptom of many psychological disorders, there is a state in which it dominates the picture, and other symptoms are but minor features of the total illness. This is known as *anxiety neurosis* or anxiety state and is the most common form of psychoneurosis.

Etiology :

(1) Research has shown that hereditary factors play a small part in the genesis of anxiety neurosis.

(2) In human subjects, it appears that encounters with emotionally disturbing experiences during the early formative years play more etiological role. For example, a severe sudden fright may cause a child to become timid and to have nightmares, and other symptoms for the whole of child's life.

(3) Sometimes the parents, on account of their own problems, let the child remain unloved, or when a sister or brother receives preferential treatment, or where the mother's own anxieties impart an excessive timidity to the child, then there may be profound undermining of the child's self-confidence.

(4) Painful events, such as, bereavements, reverses in love affair (not usual in India), disappointments in one's career, encounter with disagreeable or hostile people at work, or being involved in prolonged domestic strife, may cause a weak individual to succumb to feelings of anxiety, and interfere with his or her ability to cope with day-to-day routine.

Clinical Features:

(1) The illness may be :

(i) An *acute form* of anxiety state, often severe in intensity against a relatively normal background, or

- (ii) A *chronic form* of anxiety state, which is present in a mild form since adult life, and is subject to periodic aggravations, according to the tide of life's fortunes.

(2) The outstanding features are : inner tension and unpleasant anticipation. Sometimes the anxiety is referred to a potential happening, but more often it relates to a diffuse feeling, unattached to any particular event.

(3) A *phobia* develops into a specific form of activity *e.g.* it may relate to the dread of travelling in a bus or train or going up a lift or being alone etc. It may take the form of tension or nervousness, or develop into a panic, in which the patient may be overwhelmed with a feeling of terror.

(4) This anxiety state gives rise to other mental symptoms, such as, lack of concentration, restlessness, excitement or extreme irritability ; fear of insecurity, or of committing suicide commonly afflicts these patients ; pre-occupation with bodily functions and fear of serious illness are frequently manifested ; such patients lack energy and perseverance and feel that they can no longer carry on with their work.

(5) Physical symptoms also are prominent : muscular tenseness with hyperactivity of fingers and hands, a fine tremor of fingers, profuse perspiration, rise of pulse rate, and blood pressure ; frequency of micturition or of calls to stool ; breathing is often rapid, nausea and flatulence occur ; headache, dizziness and unsteadiness are frequently noticed ; sleep is bad ; appetite is poor ; loss of weight and disturbances of menstruation are common.

Diagnosis :

It may be difficult to distinguish an acute anxiety neurosis from an *acute thyrotoxicosis*, in which one also finds anxiety, restlessness, over-activity and feelings of exhaustion, unless the eye signs and the cardiac murmur heard on auscultation over the thyroid area are present to support the latter diagnosis.

In an anxiety state, the tachycardia diminishes quite markedly, when the patient is sleeping, a feature which is not found in thyrotoxicosis. Thyroid function tests will be helpful in settling the diagnosis.

Patients who suffer from physical diseases like diabetes, angina, peptic ulcer, renal failure and other forms of chronic diseases undergo episodes of severe anxiety, have to be distinguished from those, no less painfully anxious, who are crippled by the fears that they have just these diseases. The differential examination is prompted by a negative physical examination, but clinched only when the patient has been helped to give free expression to his fears.

Differentiation from other forms of psychological illness is less difficult. Though hysterical and obsessive or depressive symptoms may be present in an anxiety state, the diagnosis can usually be made on the totality of the picture, anxiety and its accompanying manifestations dominating the scene. An acute anxiety state will be distinguished from depressive psychosis with severe agitation and restlessness, by carefully taking the history of illness revealing the underlying severe depression with feelings of unworthiness, guilt and failure, and frequently delusions about impending and merited punishment.

Treatment :

General : (1) The physician must give the patient ample time and opportunity to tell his story in detail without interruption.

(2) Rest, ample diet, graduated exercise, water-bath treatment and multi-vitamin tonics may all help to improve the general health.

Curative : (1) **Anacardium**. This remedy has a weakness of memory, general feebleness of brain power, mental incapacity ; suits cases lying between neurasthenia and insanity ; despair of recovery ; fear of paralysis and death ; imagines he is surrounded by enemies ; fearful of walking in open air, and if anyone approaches him.

(2) **Argentum Nitricum**. Neurasthenia with nervous dyspepsia and eructations ; special characteristic of this remedy is the fear of dying, when left alone, afraid to walk in streets, lest he should fall down in a fit, or that high buildings would fall down upon him.

(3) **Avena Sativa**. Weakness of nerves, tired brain, irritability, gets excited on trifles ; urine has excess of phosphates ; history of sexual excesses and occipital headache ; to be given in *tincture doses*.

(4) **Cimicifuga**. Useful for fear of death or becoming insane ; cervical vertebrae sensitive ; neuralgic and uterine cases ; muscular exhaustion.

(5) **Ferrum Picric**. Useful in neurasthenic dyspepsia or indigestion.

(6) **Gelsemium**. Stupid and dull ; unable to concentrate mind ; vertigo ; dull ache at base of brain ; lacks confidence ; sudden emotions bring on diarrhoea.

(7) **Kali Phosphoricum**. Nervous dreads ; oversensitiveness to noise ; restless and suspicious effects of fright, grief and fear ; sleeplessness ; excessive and exhaustive mental labour.

(8) **Lycopodium**. Weakness of memory and confusion of thought ; sadness and depression, wants to be alone ; indicated in neurasthenia with gravel tendency and hepatic troubles ; psoric or arthritic symptoms ; restless sleep, flatulence and constipation.

(9) **Natrum Mur**. Spinal neurasthenia ; the small of back feels paralysed especially in the morning on rising ; the feet are heavy ; troublesome dribbling of urine ; dryness of mouth ; sticky secretions, and the skin dry and shrivelled.

(10) **Nux Vomica**. Indicated in irritable, excited, over-sensitive patients with defective memories, loss of energy. With these patients, everything goes wrong, and trifling ailments are unbearable ; intellectual incapacity ; insomnia ; nightmares and dyspeptic troubles.

(11) **Phosphorus**. This remedy suits cases standing on the border line of neurasthenia and organic spinal disease. Irritability and weakness ; over-sensitiveness to all impressions ; head too weak to think ; burning in small spots, better from rubbing ; sensation that the back would break on motion ; noises in ears.

(12) **Phosphoric Acid**. Debility arising from continued grief, over-exertion of mind, sexual excesses, or any nervous strain of the mind or body ; indifference, apathy, and torpidity of body and mind ; burning in spine and limbs ; patient inclined to be drowsy and listless ; study causes heaviness in the head and limbs. Cases of young rapidly growing lads and nervous depression from spermatorrhoea.

(13) **Picric Acid.** Useful for the brain fag of businessmen, who become depressed from slight fatigue ; mental activity with a desire to lie down and rest ; slight exertion brings exhaustion and headache, headache is frontal or occipital and extends down the spine ; sexual irritability is the prominent symptom ; in the morning tired aching in the lumbar region ; the legs are heavy and weak, with soreness of muscles and joints.

(14) **Silicea.** Patient dreads any mental or bodily exertion. He must get warmed-up to his work to do anything. He is debilitated and yet hyper-sensitive. Numbness in toes, fingers and back ; constipation (insufficient expulsive force) ; exhausted after excitement, troublesome and persistent aching of the neck muscles and occiput.

(15) **Zincum Metallicum.** Exhausting diseases have weakened the patient ; backache about the last dorsal vertebra ; excessive fidgetiness of feet ; burning in spine ; formication in the calves, and weak limbs.

(16) **Zincum Picricum.** It is more useful in spinal symptoms and exhaustion.

HYSTERIA

Definition :

Hysteria is a disorder characterised by mental dis-association leading in severe cases to multiple personality and amnesia, but more often to somatic symptoms, such as, fits, paralysis and sensory disturbances in the absence of organic disease of the nervous system.

Etiology :

(1) In general all hysterical syndromes may be regarded as representing the sub-conscious results of an attempt to escape from some unsuccessful situation.

(2) In most severe cases the dissociated part of mental life is so extensive that the patient may be regarded as suffering from multiple personality, since his body is at different times under the control of different personalities which exhibit differences in temperament and which may or may not have access to each other's memories.

(3) A similar profound mental dis-association is responsible for the state known as *hysterical fugue*, in which the patient disappears from home and wanders about, having lost his sense of identity. During the period of fugue, he has no access to the memories of the events of the normal personality and on recovery he may have no recollection of the events of fugue. Such profound degrees of dis-association are normally uncommon.

(4) Usually the splitting of personality finds expression at the physiological level, part of the body being cut off functionally from the rest of mental life, so that the patient is unable to move it or feel with it, hysterical paralysis or anaesthesia resulting.

(5) The hysterical tendency appears to be associated with a peculiarity of emotional life of the hysterical patient and in spite of the violence of somatic reactions, the psycho-galvanic response to nervous stimuli is greatly depressed in hysterical patients.

(6) The underlying abnormality which finds expression in hysteria may be in many cases inborn, though certain organic nervous diseases seem to pre-dispose hysteria, especially multiple sclerosis, any typically hysterical symptoms may occur in patients with a focal abnormality in the temporal lobe, which shows that mental dissociation may sometimes have organic basis.

(7) Women suffer more frequently from hysteria than men.

(8) Hysterical manifestations occurring for the first time in adult life, unless there is some motive (e.g. escape from stress, or the desire for material gains, may be the result of either an organic disease (such as, dementia) or else of more serious psychiatric illness (such as endogeneous depression).

The mode of production of Hysterical symptoms

(1) The precise nature of a symptom in a given case is usually determined by *suggestion*. The suggestion emanates from an organic disorder from which the patient actually suffers. Thus laryngitis may lead to aphonia, which is perpetuated as a hysterical symptom. Accidents are also apt to cause hysterical symptoms which perpetuate or exaggerate the disabilities produced by an injury. A doctor or a nurse or a friend may unwillingly evoke a hysterical symptom.

by implying that a disability is to be expected. The symptom may thus be the limitation of a disorder in a person whom the organic patient has seen and with whom he identifies himself.

(2) Suggestion operates though the acceptance on irrational grounds of the idea that he is suffering from a certain symptom. The hysterical symptom is always the expression of an idea in the patient's mind. Thus hysterical aphonia expresses the idea, "I have lost my voice". The hysterical paralysis expresses "I cannot move my limb" and so on. This fact is of great diagnostic importance.

(3) The purposive character of the suggestion is important in connection with the treatment. The purpose served in the symptom can usually be expressed as the unconscious solution of a mental conflict. The patient finds himself in a situation in which a course of action which he desires to follow conflicts with his sense of duty or self-respect. The development of the hysterical symptom unconsciously solves the conflict, though at the price of neurotic disability. For example, a girl was compelled to give up her work to look after her invalid mother. She developed a hysterical paralysis of her right hand which prevented her from doing housework, and assistance had to be obtained to look after both her mother and herself. Her hysterical illness saved her from unpleasant duty and also saved her self-respect, since she felt no one could blame her for being ill. At the same time she ceased to do any work, unconsciously revenged herself on her exacting parents, and became an object of sympathy to those with whom she came in contact. Tyrannical parents and unfaithful spouses excite such a demand directly which invalid parents, and delicate brothers and sisters evoke it competitively. The symptom of hysterical fit is the adoption of crucifixion attitude.

The patient suffering from Hysteria is thus often an individual confronted with a mental difficulty, often a conflict between two opposing wishes and being in this situation he receives a suggestion of ill-health emanating either from an actual organic disease or from some outside source. He accepts this suggestion and manifests hysterical symptoms which provide a solution, though a pathological and unsatisfactory one of this difficulty, and may also express in a symbolic form his emotional reaction to his problem.

Symptoms and Signs :

These may be arbitrarily divided into three groups :

- (1) Sensory.
- (2) Motor, including fits.
- (3) Psychological.

Sensory :

The sensory or more properly the perceptual symptoms are :

- (1) Clavus and globus hystERICA.
- (2) Blindness.
- (3) Deafness and,
- (4) Anaesthesia.

Globus hystERICA is a subjective feeling of nervous origin of a lump in the throat ; it also includes a difficulty in swallowing, due to the tension of muscles, or associated with a disinclination to eat.

Motor :

The motor symptoms are :

- (1) Paralysis.
- (2) Paresis.
- (3) Spasms.
- (4) Contractures.
- (5) Tremors.

Hysterical paralysis or paresis never attacks individual muscles, but always movements. Spasm of the external ocular muscles, leading to squint may accompany. Tremor may occur and is often gross. *Hysterical fits* often occur in patients with hysterical personality.

Psychological :

The commonest symptoms are :

- (1) Stupor.
- (2) Delirium state.
- (3) Fugue.
- (4) Pseudo-dementia.

In stupor (usually seen in a soldier at the time of bombardment), the patient lies motionless, non-resistive, without any predominant emotional tone. It is of brief duration. In less acute forms, it may be either sudden or the condition may last for years in hysterics. The confusional or delirium states may accompany a fit. The patient repeats some past happenings. In the *fugue*, the patient lives in fantasy and simply says that he does not know who he is or where he lives. The patient has forgotten his life before a certain date. A hysterical fugue is not so much clouding as a narrowing of consciousness (a dissociation). Pseudodementia covers a large group who behave as though insane, and who have a predisposition towards severe mental illness, particularly schizophrenia and defectives who have this kind of hysterical behaviour. It sometimes comes on after brain injury.

Diagnosis :

The diagnosis of hysteria can be most difficult. Two steps are required by which this difficulty can be met. Firstly, it should be demonstrated that there is no organic disease which can account for the symptoms and signs. The second step consists of discovering what situation the patient sub-consciously seeks to avoid and showing how the development of symptoms has achieved this object. If, in addition to this, evidence of a hysterical personality or of previous hysterical breakdowns can be uncovered, the diagnosis is more secure.

Prognosis :

If the fits commence in the first seven years of life, the outlook is grave, as these fits are likely to result in insanity. The prognosis of the traumatic and the hereditary types are favourable to effective treatment, particularly when the patient is willing to cooperate.

Treatment :

General : (1) Remove the patient from his or her friends and accustomed surroundings.

(2) Vegetarian diet.

(3) Avoid all excitement.

(4) Frequent baths and massage are useful.

Curative :

(1) **Ignatia.** It is a great remedy for hysteria, when the patient has great sensitiveness for external impression, laughs and cries alternately, the face flushes on the slightest emotion ; the *globus hystericus* and *clavus hystericus* are present. In the head there is a sharp pain, as if a nail were driven into the top of the head. (Thuja has similar pain in the frontal head, and *coffea* in the back of the head. Fear and grief are prominent symptoms of hysteria).

(2) **Asafoetida.** Sensation of a ball in the throat (*globus hystericus*). The habitual discharges stop ; accumulation of wind in the abdomen ; it passes upwards and causes oppressed breathing. There is a bursting feeling, as if everything would come out of the mouth.

(3) **Magnesia Mur.** Flatus collects and rises like a ball in the throat and prevents breathing, it is relieved by eructations. (with *Asafoetida*, the patient swallows continually to keep the ball down and there is a great restlessness and anxiety).

(4) **Moschus.** *Fainting* during attacks is the keynote of Moschus. (other remedies for fits are : *Cocculus*, *Ignatia* or *Nux Mosch.*) Muscular twitchings, violent spasm and constriction of the chest are also present. She may also be blue in the face, foam at the mouth and may be chilly. There may be alternate moods of joy and sadness. The patient has a tendency of scolding and using strong language. (*Palladium* is another remedy for scolding etc.)

(5) **Castoreum.** It is a great remedy for hysteria with nervous symptoms.

(6) **Tarentula Hispiana.** The patient is continually on the move and is restless and trembling.

(7) **Plumbum.** It has the characteristics haughty mental condition. Self-esteem is prominent and he looks down upon others. There are also paroxysms of loud laughter.

(8) **Platinum.** Calls for hysterical spasms, which are caused by nervous excitement.

(9) **Valeriana.** The patient is continuously on the move, but exertion causes headache and slightest pain causes fainting. The patient is apt to be joyous, lively, and talkative.

(10) **Nux Mosch.** It is adapted to nervous hysterical people with sleepiness, bloating and dryness of the mouth. It has attacks of fainting and the patient is exhausted from the least effort. There is constant nervous tension.

(11) **Pulsatilla.** There is constant change in the feelings and symptoms of the patient, with profuse watery urine, melancholia, sadness and weeping and he expects sympathy from others.

(12) **Sepia.** Hysteria associated with uterine symptoms.

(13) **Apis.** It has hysteria at nuberty with amenorrhoea and awkwardness in dropping things. The patient is clumsy.

(14) **Belladonna.** Boistrous excitement, red, flushed face, dilated pupils, rush of blood to the head and a wild look.

(15) **Kali Phos.** For attacks from sudden or intense emotions, or passion in highly nervous women. There are fits of laughter, crying and yawning.

(16) **Anacardium.** For two wills, one contradicting the other.

(17) **Cactus.** Sadness ; crying without reason, consolation aggravates, love of solitude, fear of death.

(18) **Arsenicum.** Hysterical asthma.

(19) **Caulophyllum.** Hysteria and dysmenorrhoea.

(20) **Sticta.** Hysteria after loss of blood.

OBSESSIONAL DISORDERS

Definition :

An obsession is a constantly recurring thought, which the patient recognises as his own, but resists because it is foolish or repugnant. In spite of the efforts to dismiss the thought, it persists in returning, so that in the end he becomes tormented by it. The condition in which the patient, although perfectly intact with his environment, may be quite severely handicapped by his unrelenting pressure of his unwholesome thoughts and impulses is termed "*Obsessive Compulsive Neurosis*" or disorder.

Etiology :

(1) Obsessive state is often found in children whose parents are similarly affected. So the hereditary factor is strong. Many observers, however, believe that the meticulous, rigid routine imposed by such patients is more conducive to obsessional neurosis in the child than the hereditary environment itself.

(2) Psycho-analytic studies suggest that obsessional personality traits have their origin in a pathological over-concern with the achievement of bowel control, imposed by parents who in their turn were similarly treated in their infancy.

(3) As individuals with obsessional personalities are excessively neat and tidy and conscientious to a fault, and precise in details, they become so lost in attention to details that there is interference with the main stream of activity. So long and finely do they weigh the pros and cons of every situation that the conclusions and decisions are never reached. These characteristics make the personality rigid in outlook, stubborn in character and morose in temperament. This means that environmental factors are most important in creating obsessive mental states, which result from the influence of strict, morose, cruel, over-conscientious obsessional parents over their children in early years.

(4) Encephalitis lethargica and a few other cerebral diseases may produce typical obsessional neurosis in persons previously free from tendencies in this direction.

Symptoms :

Obsessions are conveniently classified as :

- (i) Ideas or images.
- (ii) Impulses.
- (iii) Phobias.
- (iv) Ruminations.

These develop constantly.

Among *obsessive ideas and images* are tunes, words, phrases and mental pictures of a disagreeable sort, e.g. of a mutilated corpse and obscene associations.

Obsessional impulses are often of a suicidal or aggressive character ; the patient may feel an urge to kick people in the street to push a friend from the top of a hill or to throw himself under a passing train. In many other cases, they are less alarming e.g. impulses to swear in a church, to laugh at a funeral, to count numbers senselessly or to avoid typing a particular word with a given number of letters or beginning with a particular consonant.

Phobias : are closely bound up with other varieties of obsession. Thus the patient who has an impulse to plunge knife into his friend's or his own neck had an understandable *phobia of knives*. The patient who is troubled by obscene thoughts whenever he looks at a naked statue, develops a *phobia of museums*. It must be understood that it is loose usage to give the name, 'phobia' to every case in which an individual develops fear that is excessive or inexplicable. The essential feature of an obsession should also be present. The term '*claustrophobia*' as such, is not a phobia, because the fear of being enclosed, has no obsession. Fears of dirt or infection are very common phobias (*mysophobia*), as they are symbols of moral (usually sexual) taint and they lead to much washing. Another kind of phobia is that which has fear as its object, i.e. the patient is afraid of any situation in which he may feel fear. Some such patients do not leave their homes for years, as they feel that once they go out in the open, they will have trouble. Other forms of phobias are : *Nictophobia* (fear of darkness), *Acrophobia* (fear of heights), *Monophobia* (fear of being alone), *Pathophobia* (fear of disease). Obsessive phobias keep on invading the patient's consciousness.

Obsessional Rumination. These usually take the form of endless questioning or search. Religious scruples sometimes fall into this category. Anxiety and depression or mania are most common symptoms of nearly all obsessions.

Diagnosis :

In *obsessional neurosis*, there must be a feeling of compulsion, and the patient does not feel that his delusions are silly, but firmly believes in their truth. In *Schizophrenia*, such symptoms as a feeling of compulsion or direction by some unknown force should not be confused with those of obsessive disorder.

Treatment :**(a) Obsessional phobias :**

(1) *Aconite, Hydrocyanic acid, Platina.* (Fear of being in a crowd).

(2) *Aconite; Aurum, Lilum Tig., Nitric acid, Nux Vom. Phosphorus, Platinum, Psorinum, Agnus, Secale* (Fear of impending evil).

(3) *Succinum.* (Fear of being in closed spaces or trains).

(4) *Bismuth, Hyoscyamus, Kali carb, Lycopodium, Stramonium, Arsenicum.* (Fear of being alone).

(5) *Aconite, Calc. Carb, Hydrocyanic acid, Nux Vom.* (Fear of open spaces).

(b) Obsessional ideas :

(1) *Cannabis Indica.*

(2) *Sulphur.*

(3) *Cocculus.*

(4) *Arsenicum.*

(c) Obsessional impulses :

Obscene : *Cantharis, Staphysagria, Phosphorus, Verat. A.*

Violent : *Bell., Agaricus, Staphys., Stramonium.*

Too Talkative : *Lachesis, Stramon.*

PSYCHIATRIC DISORDERS OF CHILDREN

The classification of psychiatric disorders in children should include :

(1) Behaviour disorders of childhood e.g. thumb-sucking, nail biting, masturbation etc.

(2) Problems of personal conduct e.g. emotionalism—anger, jealousy and fear.

(3) Problems of social or anti-social behaviour e.g. truancy, stealing etc.

(4) Special features of clinical behaviour, *e.g.* enuresis, disturbed sleep, day-dreaming, stammering, obstinacy.

(5) Finally various forms of sub-normality.

All these symptoms excepting masturbation and mental sub-normality have been dealt with under one heading, "Infantile emotionalism".

INFANTILE EMOTIONALISM

Definition :

Infantile emotionalism corresponds in form to anxiety neurosis in adults. It is a type of mentality in children and consists of habit disorders of varying degrees. The most frequent habit disorders are :

- (i) **Enuresis.**
- (ii) **Nail-biting.**
- (iii) **Stammering.**
- (iv) **Sleep-walking.**
- (v) **Thumb-sucking.**

The graver forms are *lying, unmanageability, temper tantrums, stealing and truancy.*

Etiology :

These are generally hereditary tendencies. *Enuresis* occurs in more than one member of a family. It may be the result of anxiety, lack of education and faulty training. *Sleep-walking* also commonly occurs in several members of the same family. *Stammering* is noticed among timid and over-anxious children. Lying may be of two kinds :

- (a) **Defensive**, to protect from consequences or
- (b) a result of *phantasy* as a form of projection of wishes and desires into realisation by words. *Temper tantrums* are usually the results of methods of handling, and are a means of achieving some end. All these problems indicate generally some difficulty on the part of the child to adapt himself to the environment as a result of a frustration or unfulfilment of some desires.

Symptoms :

These are :

- (1) **Seclusiveness.**
- (2) **Irritability.**

- (3) Aggression, rage.
- (4) Fears.
- (5) Disturbed sleep.
- (6) Day dreaming.
- (7) Obstinacy.
- (8) Sensitivity to comments.
- (9) Temper tantrums.
- (10) Physical inactivity.
- (11) Want of toleration.

Treatment :

General : Frequently, a readjustment of the environment is necessary. To obtain this :

(1) a temporary removal of the patient to a new surrounding may be necessary, so that the new conditions may not reawaken the desire or impulse to misconduct.

(2) He should be handled with kindness and understanding. Group activity will foster social spirit and will do away with any fear in the mind of the child. Corporal punishments, threatening, scolding and physical injuries should be avoided. Warm, personal, and sympathetic contact has a great social value.

Curative :

(a) Enuresis : (Bed Wetting)

(1) **Causticum**. Great remedy for enuresis. Its characteristics are :

- (i) Involuntary urination at night in sleep when coughing, sneezing or blowing the nose ;
- (ii) Difficulty in passing the last few drops of urine ;
- (iii) Waits a long time before the child starts to void urine very slowly.
- (iv) Bed wetting during first sleep.

(2) **Ferrum Phos.** Enuresis of nervous origin, found useful in senile cases.

(3) **Belladonna**. Enuresis in profound sleep (also Kali Bromatum).

- (4) **Equisetum**. Enuresis day and night with profuse emission.
- (5) **Cina**. Enuresis due to irritation of worms.
- (6) **Pulsatilla**. Dribbling on emitting flatus.
- (7) **Verbascum**. Constant dribbling.
- (8) **Benzoic Acid**. When urine has strong offensive odour.
- (9) **Sepia**. Enuresis in first sleep. (See chapter V on kidney also).

(b) Emotional Outbursts :

- (1) Aconite .
- (2) Chamomilla .
- (3) Bryonia .
- (4) Nux Vomica.

Fright and Fear :

- (1) Aconite.
- (2) Gelsemium .
- (3) Opium.
- (4) Hyoscyamus.

Mortification and Displeasure :

- (1) Staphysagria
- (2) Aurum.

Indifference :

- (1) China.
- (2) Ignatia.
- (3) Phosphoric acid.

Aversion to Physical Work :

- (1) Baryta Carb.
- (2) Calcarea Carb.
- (3) Gelsemium.
- (4) Nux Vomica.
- (5) Sulphur.
- (6) Zinc.

Fretful and Quarrelsome :

- (1) Aconite
- (2) Ignatia
- (3) Nux Vomica.

Impudent and Impulsive :

- (1) Anacardium.
- (2) Chamomilla
- (3) Natrum Mur..
- (4) Nux Vomica.

Stubborn and Obstinate :

- (1) Bryonia
- (2) Chamomilla
- (3) Nitric acid
- (4) Staphysagria
- (5) Nux Vomica.

Somnambulism : (Sleep-waking)

- (1) Aconite (after fright).
- (2) Kali bromatum (with night terrors and imbecility).
- (3) Artemisia vulgaris (fright or over-exertion).
- (4) Opium (after fright with drowsy condition).
- (5) Natrum Mur. (dreams of quarrels, murders, fire and thieves).

Speech, Stammering :

- (1) Aesculus glabra (thick speech).
- (2) Bothrops (inability to articulate).
- (3) Bovista (stammering of children).
- (4) Cannabis Sativa (stuttering or wavering speech).
- (5) Causticum.
- (6) Ignatia.
- (7) Opium.
- (8) Phosphorus.
- (9) Stramonium.

Truancy :

- (1) Aragallus Lamberti.
- (2) Bryonia.

Lying :

- (1) Morphinum.
- (2) Veratrum Album.

Biting of Nails :

- (1) Ambrosia.
- (2) Arum.

MASTURBATION, SPERMATORRHOEA**Definition and Etiology :**

Masturbation is the habit of sexual excitation by friction of the genitals (self-abuse) either accidentally acquired or learnt from association (in schools or in the company of bad associates), under the influence of a morbid imagination, or from excitement occasioned by the use of impure books or conversations, and often in ignorance of the consequences of the vicious practice. Schools and colleges are often fruitful sources of instruction and initiation into this vice.

Spermatorrhoea is the involuntary seminal emission during sleep and other times. Its causes may be morbid conditions of the urethra, irritability of the bladder, indigestion with constipated bowels, violent constriction of the levator ani, rectal irritation from worms, prolapsus ani, horse-back exercise, sexual excesses, disease of the brain or spinal cord.

Symptoms and Effects :

The following are the most common results :

Depression of spirits, breathlessness and irritability, weakness of memory, enfeebled intellect, indecision and loss of moral control ; weakness and pain in the back ; indigestion, constipation flatulence, palpitation, headache, cold, damp hands and moist skin, sunken eyes, paleness of the face, stunted growth, paralysis, impotence etc.

Remorse is so often writ in the face.

Treatment :

This must be both *medical* and *hygienic*. These methods include all available methods for establishing the constitutional strength, soothing excitement, removing local causes of irritability, and forming healthy habits both of mind and body.

The medical treatment involves the administration of homoeopathic medicines out of the following on the basis of local and general symptoms of individual cases. The remedies are : *Agnus castus*, *Baryta carb* ; *China*, *Cantharis*, *Phosphorus*, *Acid Phos*, and *Sulphur*.

The hygienic treatment should include occupation, recreation, literary tastes, mental and moral discipline, diet, sleep, bathing etc. The circumstances of each case should be diligently investigated, and management strictly regulated accordingly.

MENTAL SUBNORMALITY**(Retarded Children)****Definition :**

Mental subnormality is a state of arrested or incomplete development of mind which indicates subnormality of intelligence and is of a nature or degree which requires or is susceptible to medical treatment or other special care or training of the patient.

Etiology :

(1) The feeble-mindedness may be due to a variety of causes ranging from heredity to trauma.

(2) There may be environmental causes which include cerebral damage e.g. incompatibility of Rhesus factor, meningitis, encephalitis, maternal rubella, birth injury and anoxia, cerebral syphilis, malformation and deprivation of sensory and social stimuli, as in a neglected deaf-mute. Another sort of deprivation leads to cretinism.

(3) The first three months of pregnancy are most likely to impair normal development.

Symptoms :

The traditional classification of the sub-normal children is :

(1) **Idiots** who are too defective to be able to guard themselves against common physical dangers.

(2) **Imbeciles.**

(3) **Feeble-Minded** persons, who need to be looked after because of their incapacity to manage their affairs or to profit by instruction.

The physical symptoms are chiefly due to lesions of the central nervous system *e.g.* birth trauma may have led to paralysis, spasticity, athetosis, or there may be inflammation of the brain and its membrane, as from syphilis. There may be rocking and twisting movements, grimaces, and abnormal postures. There may be misshapen ears or retinal changes and other anomalies like skeletal and cardiovascular defects. Lack of intelligence and mental control is predominant. Imbeciles are usually incapable of learning and remembering even simple matters. Idiots cannot understand abstract concepts and their judgment is poor.

Treatment :

Baryta carb 6X should be given to the idiotic and imbecile children for a long time thrice daily.

GROUP—B**IV—PSYCHOSES, Organic**

Psychosis is a major illness that arises in the mind itself, which in its full form involves insanity. Within the large group of psychiatric syndrome, there is a division between the mental changes that accompany distinctive physical disorders and those for which no such physical relationship has been demonstrated. The former type of psychiatric disorders are termed *organic or symptomatic psychoses*, and the latter are called *constitutional or functional psychoses*.

Organic Psychiatric Syndromes**NEURASTHENIA****Definition and Etiology :**

The term has been over-used and ill-used, but it need not, therefore, be discarded now. It denotes an irritable, hypersensitive

weakness and depression that is not uncommon after infections, exhausting experiences, *e.g.* hunger, lactation, worry, haemorrhage, cranial injuries and chronic poisoning *e.g.* with alcohol or coffee.

It is often seen that a clinical picture indistinguishable from it frequently arises, where physical causes are unlikely and emotional causes are obvious. Just as constant fear can pass into delirium, so can physiogenic neurasthenia be aggravated, until it becomes plain dementia.

Symptoms :

(1) The symptoms are :

(a) **Partly physical** *e.g.* active deep reflexes, increased sensory irritability, feelings of pressure on the head and pains in the muscles and elsewhere, giddiness, vasomotor instability, delayed peristalsis, feelings of fulness in the abdomen, diminished sexual urge, slight clumsiness, and tremor of the muscles of the face, tongue and hands.

(b) **Partly psychological**, *e.g.* feelings of languor, incapacity to concentrate, inaccuracy of memory, loss of interest, slight depersonalization, irritability, lessened control of emotions; and perhaps, slight paranoid, obsessional or hypochondriacal trends.

(2) When the condition is physiogenic, it is less influenced by a change in mood, than would be the case with psychogenic neurasthenia and the patient is better able to control his motor unrest than his agitated expression.

Prognosis :

Recovery takes place, unless the noxa continues to act. Where the noxa persists, extreme irritability results. When physical noxa ceases to act, emotional ones enter the field, such as unemployment, domestic fears and frustrations, and so the illness drags on, etc.

Treatment :

As under, "anxiety state" and "Delirium states".

DELIRIUM AND SUB-DELIRIUM STATES

Definition :

Delirium and sub-delirium states, the latter being closely akin to delirium—are states of clouded consciousness (or confusion), in

which thought is very incoherent. The difference between the two is that in sub-delirium states, the patient is more eager to get in touch with his environment than in typical delirium. In sub-delirium states if consciousness is not too grossly clouded, the patient is perplexed and troubled by the disordered perceptions through which alone he can learn what is going on around him. The picture of sub-delirium states may be akin to maniac excitement and some catatonic states, and differentiation depends on the causes of the illness. In acute *hallucinations*, orientation and grasp are very little impaired, but auditory hallucinations abound and there is a tendency to the formation of *delusions*.

There is another state of delirium, which is called *twilight state*. This is a syndrome in which consciousness is changed because of some powerful affective influence; anger or fear may so overwhelm psychic life that the patient cannot grasp his surroundings, his thinking is interrupted and slow, and his motor behaviour is in keeping with his mood. It is as often of psychogenic as of organic origin.

Causes of Delirium :

- (1) It is most familiar in fevers.
- (2) The acute form may be produced by :
 - (i) Drugs, such as alcohol, cannabis etc.
 - (ii) Infections, such as encephalitis, small-pox, typhoid fever.
 - (iii) Trauma to the brain, electrolyte imbalance and metabolic disorders (Uraemia, hepatic failure), vitamin deficiency and acute cerebral and affective disturbances.

Symptoms of Delirium :

- (1) The characteristic mental symptoms are general malaise, restlessness, irritability and sensitiveness to external stimuli, headache, anxiety and troubled sleep or insomnia.
- (2) Mild forms of delirium are met with in cold in the head.
- (3) Severe delirium is marked by illusions and hallucination of all the special senses, especially vision.

(4) Anxiety often becomes extreme and the patient is terrified of his fantastic visions.

(5) Thought becomes as chaotic and fleeting as in dreams.

(6) Activity is incessant and past experiences of daily life are revived.

(7) Attention is weakened, and orientation in time and space much impaired.

(8) Auditory hallucinations occur with clearer consciousness, visual ones very profoundly with a clouded mind.

(9) Vestibular hallucinations (of floating in the air) may occur.

(10) Distressing and incoherent ideas pursue each other—ideas of being torn to pieces, poisoned, burnt, buried alive and so on. Ideas of grandeur can also be held.

Treatment :

General : (1) Nasal feeding or intravenous infusion may be necessary.

(2) Vitamins may be prescribed.

(3) Sleep should be induced.

Curative : (1) **Belladonna**. This is the first medicine to be thought of. The indications are : delirium with loud laughing ; screaming out and grinding of teeth with a desire to hide and escape. The patient is full of fears and imagination with positive outbursts of rage and fury ; great activity with great excitement ; a hot face and head ; sensation of falling off with imaginary clutching of the hair ; sometimes stupor is present and when roused from it, the patient strikes people and barks and bites them like a dog and is most violent.

(2) **Hyoscyamus**. The delirium is of a mild type and has no excitement which one finds under *Stramonium* or cerebral congestion, which characterises *Bell*. Under this drug, there is an aversion to light ; the patient fears being poisoned ; he will sit up in bed, talk and mutter all the time and look wildly ; there is a great deal of nervousness, whining, crying and twitching ; a tendency to escape from enemies and consequent picking at bed clothes and objects in the air.

(3) **Stramonium** Furious delirium, acute mania, and sensorium more perverted and excited than under the previous two remedies. The patient desires light and company, is very loquacious, garrulous, laughs, sings, sweats, prays, curses, and makes rhymes. He sees ghosts, talks with spirits and hears voices. The head is frequently raised from the pillow. The face is bright-red and the expression anxious and terrified, as he sees objects rising from every corner.

Other remedies are : *Cimicifuga* (low delirium, uterine disorders ; dropping of lower jaw), *Lachesis* (loquacity with subjects changing) ; *Veratrum Alb.* (coldness of body and sweat) ; *Phosphorus* (low typhoid type with haemorrhage) ; *Thuja* (imagines he is made of glass) ; *Absinthium* (delirium with a desire to move about) ; *Agaricus* (delirium of typhoid fever with tremors).

DEMENTIA

Definition :

Dementia is the gravest and the most typical syndrome, which corresponds to a diffuse cerebral disease, and is made up of intellectual impairment and lessened control of emotion. It is customary to consider as dementia only those cases where the cerebral damage has occurred in later childhood, adolescence or adult life and to regard earlier cases *e.g.* cretins as showing mental deficiency or arrest of development.

Etiology :

This chronic organic syndrome may be caused by a wide variety of diseases of the brain. The most common of these is cerebral atherosclerosis. The other important causes include :

- (1) Cerebral trauma.
- (2) Inflammations (neurosyphilis, encephalitis).
- (3) Disseminated sclerosis.
- (4) Intoxications
- (5) Deficiency disorders (chronic alcoholism, pellagra, vitamin B₁₂ deficiency).
- (6) Prolonged hypoglycaemia.

(7) Carbon monoxide poisoning.

(8) Cerebral neoplasm.

(9) A group of degenerative disorders including Huntington chorea and senile dementia.

Clinical Picture :

The clinical picture varies with the cause, the previous personality of the patient, the age of the onset and the rate of progression, but in all cases mental symptoms are seen to involve the intellect, memory, emotions and behaviour.

Insomnia is often an early symptom, and may lead to nocturnal restlessness and confusion, as the disease advances. Judgment and reasoning are affected easily. Impairment of memory is the most prominent finding, and in later stages may produce disorientation in space and time. Impairment of higher control leads to emotional instability, and outbursts of violence or sexual aberrations at variance with the patient's previous character. There may be fluctuations of mood with euphoria or depression. Delusions are common, and may be of grandiose or self-condemnatory and hypochondriacal character. When these are centred on others, they tend to be paranoid. As the structure of personality disintegrates, the patient neglects his appearance, becomes lax in personal cleanliness, and incontinence occurs. Focal neurological signs may be found *e.g.* dysphasia, apraxia, agnosia, hemiplegia, and epileptic attacks.

DEGENERATIVE CEREBRAL DISEASES OF THE SENIUM AND PRE-SENIUM

(a) Senile Dementia :

Senile dementia or psychosis is not only to progressive impairment of memory and vitality with increased eccentricity and hypochondriasis, but also a disintegration of the personality as a whole.

Etiology :

(1) Heredity is held responsible for the wide differences in mental health among elderly people. The symptoms of senile

psychosis, however, may not be revealed until the patient is exposed to some sudden stress. e.g. death of his wife, the need to move from the house, the loss of his occupation or some new set of circumstances.

(2) Constitutional factors are most important. A tendency to become dotards may be evident in successive generations of a family.

(3) Social factors are also of great importance.

(4) Senile psychosis is more common in people with life-long nervous symptoms, or with psychopathic personality.

Symptoms :

The psychosis may take various forms :

(a) Depressive.

(b) Maniac.

(c) Paranoid.

(1) In the depressive variety, there is seldom retardation, the patient is irritable and hysterical symptoms may be commingled with hypochondriacal ones. Obscure bodily pre-occupations and disturbances in time appreciation lead often to fantastic delusions about eternity and what is happening in the body. Ideas of poverty, weakness and disease are highly exaggerated e.g. the patient's urine drowns the whole world, his body is an undying shell of corruption ; he is as tiny as a baby. These ideas are monotonously repeated.

(2) The *maniac* variety is occasional and a pointless activity with a diarrhoea of words with silly boasting, may be accompanied by a disturbance of memory. The illness may be slight and may not be as severe as to call for hospital care.

(3) The paranoid variety is especially likely to occur in people who have been of a suspicious turn of mind. They hide things, because they feel they are surrounded by thieves, and they forget where they have hidden themselves ; thus failing senses, especially of hearing, feed their distrust and they project their awareness of sexual impotence or declining intellect. Hallucinations and delusions are mingled e.g. gases are pumped into their rooms, their food is poisoned, people throw bombs at the house by night, greedy heirs are driving them out of their possessions. Some patients call in the police to protect themselves.

Memory is poor for recent events. The memory of remote past is not entirely spared. Grasp, judgment and relevancy of thought is faulty ; obstinacy, reversion is rigidly adhered to. The patient is garrulous with repetitive and ill-arranged talk.

The range of interests is narrow, particularly in regard to food, possessions and bodily well-being ; patients hoard rubbish and are angry, if interfered with in this matter. Their effective responses are greatly reduced, as they meet calamities with composure. They are unable to look after themselves and remain dirty and shabby. Delirium and confused states are prone to occur at night. Sleep is bad and often the patients remain busy all night long. Occasionally, the patient sets fire to the house during his nocturnal prowls.

Bodily symptoms are those of old age, especially in the central nervous system, where it leads to a slow, careful gait, with short steps and legs wide apart, apraxia and poor coordination, tremulous rather whining utterance, small sluggish pupils and occasionally epileptic seizures. The disorder of movement is conspicuous in handwriting which is pointed, small or erratic in size and sometimes jerky and tremulous.

Diagnosis :

Senile dementia of the depressive variety must be differentiated from *depression* coming in an elderly person. A history of previous attacks and freedom from any signs of intellectual impairment or deterioration are significant indications.

PRE-SENILE DEMENTIA

Definition :

The conditions known by the names of *Pick's disease* and *Alzheimer's disease* can be regarded as typical varieties of senile or pre-senile psychosis. Clinically, it is difficult to distinguish between these two diseases, as mixed forms also occur.

A progressive dementia, often with aphasia and apraxia, coming on at a comparatively early age and progressing rapidly, points to one or the other of these closely linked conditions. They form about 5 to 10 per cent of all such psychoses.

Pick's Disease :

It consists pathologically of a circumscribed cerebral atrophy, mostly in the frontal or the temporal lobe, or in both. The motor area is, however, seldom affected. Other areas of the brain especially the parietal, may be involved.

Etiology :

There is an hereditary determining factor. It is twice as frequent in women as in men.

Symptoms :

(1) The onset is gradual from the age of 40 onwards.

(2) Symptoms depend upon the localisation of the atrophy.

(3) Memory and affect are not impaired till late. They are preserved even at a stage in which the patient behaves stupidly—stealing, lying or otherwise making a fool of himself.

(4) Spontaneous attention is dull and unresponsive ; judgement deteriorates, and initiative fails ; stereotyped repetition of phrases, monotonous talking and laughing or singing and outburst of bellowing appear in later stages.

(5) There may be aphasia.

Diagnosis :

This may be difficult during life. It may be assisted by encephalogram, showing the shrinkage of cerebral tissue from atrophy, or biopsy.

Prognosis :

The condition may last for 2 to 12 years.

Alzheimer's Disease :

In this disease, the senile plaques and neurofibril changes are very numerous. The onset may be between 40 and 60.

Clinical Features :

(1) This disease predominates among women.

(2) Initial symptoms of headache, irritability and forgetfulness are quickly followed by progressive dementia.

(3) Aphasia and apraxia are prominent.

(4) The patient may be restless and depressed.

(5) As the disease progresses, the patients are less open to affective influences ; they sink into themselves and say little stereotyped words and syllables and movements take the place of embarrassed remarks and gestures.

(6) Disturbances of gait and increased muscular tone are common.

(7) Muscular rigidity may lead to contractures.

(8) Convulsions are not common.

Prognosis :

This depends on environmental factors and partly on the previous rate of development of the condition, the general physical health of the patient and any special pathological basis, e.g. Pick's disease, that may be recognised.

Treatment :

The treatment should be conducted on the lines of other dementias previously mentioned. The following remedies are suggested :

(1) **Calcareo Phos.** Dementia from masturbation ; suitable for pre-senile and senile dementias.

(2) **Picric Acid.** Suitable in threatened dementia ; this remedy is a rival of *Phosphoric acid*.

(3) **Nitric Acid.** A tendency to commit suicide by shooting. There is a disposition to swear ; syphilitic dementia.

(4) **Arsenicum.** Fear of death, fear of being alone, with strong suicidal tendencies. Exhaustive insanity, chewing finger nails, and picking at the skin are positive symptoms.

(5) **Thuja.** The patient is hurried. Trifles make him angry. He will not permit anyone to approach him. Music causes weeping and trembling of feet.

(6) **Natrum Mur.** The patient of this remedy is easily angered and hopeless about the future. Consolation brings flood of tears in

his eyes. Conversation is disconnected (Sense of hearing, oversensitive). Natrum Mur patient has antipathy against certain people.

(7) **Aurum Metallicum**. It is a suitable remedy, where there is an actual disgust for life, a longing for death, and a mental tendency to commit suicide. Syphilitic dementia.

(8) **Belladonna**. For patients who are exceedingly depressed, and subject to violent attacks of weeping. It suits buffoonish insanity with ridiculous actions, singing, screaming and cursing.

(9) **Anacardium**. The best guiding symptom is the sensation of having two wills, contradictory to each other. The second characteristic is the irritability of mind with a desire to swear and curse, as a result of chronic mania. The patient imagines that he is hearing voices far off, talking to him and that he is double.

EPILEPSY

Definition :

Epilepsy is a word which has come down to us from ancient Greece, and in general it refers to the persistent paroxysmal occurrence of attacks. If there is disease elsewhere, such as uraemia, or cardiac failure, we do not say that the patient has epilepsy, but rather, "uraemic fits" or syncope or convulsions. Though there can be no sharp dividing line, where the word epilepsy is used, there is the implication of a primary disorder of the brain. Thus epilepsy can be defined as a brief disorder of cerebral function, usually associated with a disturbance of consciousness, and accompanied by a sudden, excessive, electrical discharge of cerebral neurones.

Classification :

No classification is all conclusive. Each is unsatisfactory. There are, however, two sorts of epilepsy *general* and *focal*. Again there are two sorts of general epilepsy—*major* and *minor*, usually termed as *Grand Mal* and *Petit Mal*. Any attack, however elaborate in its manifestation, other than grand mal or petit mal, is a focal attack of epilepsy. Focal attacks may range from local muscle twitching to coordinated attacks, from a feeling of pins and needles in finger, to the experience of an elaborately organised hallucination.

Another division is between *Constitutional* (idiopathic) and *symptomatic* epilepsy.

Symptomatic Epilepsy :

The known causes of symptomatic epilepsy are many. Injury of the brain, whether from violence from without or from disease from within, may cause epilepsy. There are many diseases which damage the brain *e.g.* :

- (1) Cerebral tumour.
- (2) Encephalitis.
- (3) Meningitis.
- (4) Abscess.
- (5) Vascular lesions and so on.

Birth injuries and asphyxia are the most common causes. Injury in later life is the next cause, and incidental illness involving the brain is another cause. The younger the subject, the more likely is the epilepsy to develop.

Idiopathic Epilepsy :

Definition :

Epilepsy is said to be idiopathic when the attacks recur over long periods of time without any discoverable organic disease of the brain or other known cause of fits.

Etiology :

(1) The immediate cause or causes may be indication of metabolic disturbance in the nerve cells in which there is excessive discharge of nervous activity.

(2) In remote causes, constitution plays a great part in addition to organic disease of the brain. It may be that while epilepsy is not inherited, there is some heritable instability of cortical cell function, which, in combination with other factors, leads to the appearance of epilepsy in certain circumstances.

(3) Most of the attacks occur during sleep or shortly before or after waking.

(4) In women there is a pronounced increase of liability to fits in association with menstrual periods.

(5) Physical disturbance, such as, vertigo, nausea or vomiting increase liability to fits as does physical injury.

(6) General anaesthetics often precipitate fits of epilepsy.

(7) Psychological factors precipitate fits, *e.g.* worry of examination, any excitement, or disappointment, grief or anticipation of bad news. This is particularly true of patients of a rigid and rather obsessional temperament.

(8) In general it can be said that epilepsy being the disturbance of the brain is much affected by disorders of the mind.

Symptoms :

(1) An epileptic is generally free from attack when occupied or is at work or keeps his attention fixed in some pursuit or towards an object.

(2) Prior to the attack, there may be signs of headache, irritability, restlessness, euphoria, depression, lethargy, somnolence, unusual appetite and a peculiar vacant look. Sometime minute attacks are preceded by partial lapses in consciousness, a sense of strangeness, a dreamy state or giddiness. There are three kinds of attacks :

(a) Grand mal fits.

(b) Petit mal fits.

(c) Focal fits.

Major Epilepsy (Grand Mal) :

The major epilepsy, as it is called, consists of fits which conform to a stereotyped clinical pattern in which several stages may be recognised.

(1) **A prodromal phase** : which lasts for hours or days, warns the patient that the attack is impending. This is an occasional phenomenon and usually takes the form of a change of mood.

(2) **An aura** : which is uncommon in grand mal fits. When it does occur, it is of a brief duration and vague nature, usually being no more than an apprehension that it is about to occur.

(3) **The tonic spasm**. This is an invariable part of a grand mal attack. At the onset of this stage, the patient loses consciousness and, if upright, falls to the ground. A sustained tonic spasm

involves the respiratory muscles, so that air is forcibly expired through the partially closed glottis, giving rise to a sound or 'cry' called, "*the epileptic cry*". This phase lasts 20 to 30 seconds, and during this time the respiratory movements are suspended, so that cyanosis occurs.

(4) **A clonic phase**, in which the sustained tonic spasm gives place to interrupted powerful jerking movements of face, body and limbs. The movements of jaw and tongue causes saliva to froth in the mouth. This stage also lasts half a minute or so. Some patients during this stage may bite the tongue; some never do it, others occasionally do so. Incontinence is a common feature at this stage but is by no means invariable. A rare phenomenon is seminal emission.

(5) **The stage of relaxation**. After movements have ceased, the patient lies in a flaccid comatose state which evolves into normal sleep. This stage often lasts a few minutes but may be prolonged for half an hour or more.

The Minor Epilepsy (Petit Mal) :

The disturbances, for which this term is used, show considerable variation in degree, but share in common the fact that there is a sudden impairment or loss of consciousness. Attacks of this sort usually occur in children with idiopathic epilepsy and spontaneously improve after maturation is complete at about 14 years of age. There are three types of clinical manifestation :

(1) The most common variety of attack takes the form of a transient loss of consciousness. The patient interrupts whatever he is engaged in, and may stare blankly ahead. The whole episode takes about 10 to 15 seconds, and is so brief and undramatic that it may pass unnoticed. Such '*absences*', as they are called, may occur very frequently in childhood.

(2) Less commonly the brief loss of consciousness is accompanied by myoclonic jerking of the arms. Myoclonic jerks happen especially in idiopathic epilepsy and in association with degenerative cerebral disease of infancy (Lipid disease).

(3) The least common type is the akinetic seizure in which the patient falls to the ground unconscious but recovers consciousness, and is able to rise, almost immediately.

Partial or Focal Epilepsy :

Since there are many neuronal regions from which epileptic discharges may originate, there are many clinical variations of focal fits. A focal discharge may spread to become generalised, and initially localised clinical disturbances may progress to imitate a grand mal fit. It is important, therefore, to establish the nature of the phenomena which occur at the onset of any form of seizure, since these indicate the focal origin :

(1) Temporal Lobe Attacks (Psycho-motor fits) :

The temporal lobe is the commonest site of local epilepsy. Most characteristic of the clinical manifestation are hallucinations of smell, and loss of taste, hearing or sight. Disturbances of memory are indicative of temporal lobe fits. Sometimes these features are associated with intense emotional or mood changes. In temporal lobe attacks, consciousness is usually disturbed but not lost. Occasionally, the patient during this state will carry out well co-ordinated and apparently purposeful motor acts, even of a violent and anti-social nature without any memory of such activity thereafter. The patient often maintains some contact with his surroundings, but feels he is remote from them often likening the experience to a dream-like state.

(2) Jacksonian Epilepsy :

This epileptic attack is best restricted to fits in which clinical disturbance of function, initially restricted to a circumscribed part of the body, spreads to involve adjacent areas. Minor seizures usually take the form of involuntary twitching or clonic movements which begin in a part of the limb, spread to involve the whole limb, then, perhaps, the whole of one side of the body, or eventually the involvement may become bilateral. Consciousness may or may not be there. Sometimes after recovery from a Jacksonian fit, the parts affected remain paralysed.

There are other varieties of focal fits also *e.g. akinetic fits, visual fits, auditory fits, olfactory and gustatory fits and sensory fits*. Sleep and headache are the common sequelae. Besides, the patient is dull and dazed, irritable and unreceptive. Vomiting may follow any type of fit, especially after a convulsion.

Dementia in Epilepsy :

Some patients with frequent fits do show *dementia*. As a rule, dementia is due to the cause of the fits and not to the fits themselves, so that a patient with a cerebral tumour, or cortical atrophy or alcoholism, may show dementia and a change in personality.

Note : Other diseases (already explained elsewhere) of the nervous system and other systems that may be associated with dementia are :

- (1) Ataxia.
- (2) General paralysis of the insane.
- (3) Encephalitis.
- (4) Diabetes mellitus.
- (5) Opium and alcohol habits.
- (6) Gout.
- (7) Deficiency disease.
- (8) Pernicious anaemia.
- (9) Uraemia.
- (10) Exophthalmic goitre.
- (11) Myxoedema.
- (12) Pituitary diseases.
- (13) Addison's disease.
- (14) Cushing syndrome.
- (15) Cerebral tumour and abscess.

Diff. Diagnosis :

In the diagnosis of *epilepsy*, the sudden onset without cause, the transience, the recurrence, the circumstances of the moment are useful aids. Epilepsy is the only condition which causes repeated attacks in sleep with the exception of *nightmare*, and this seldom causes difficulty in diagnosis. Again if an attack occurs soon after waking, there is a strong presumption that it is epileptic.

The *mid-brain functional syndrome* is sometimes mistaken for epilepsy. In this the patient undergoes strange experiences as passing from wakefulness to sleep or from sleep to wakefulness. On

the motor side these include jerks or compulsive movements and paralysis and on the sensory, disturbances of body, shape or size, sounds, voices and visions (waking dreams). If the patient has the disturbances at the moment between being awake and asleep, then the attacks are not epileptic.

Syncopal attacks are distinguished from epileptic attacks by their slow onset, the gradually increasing pallor, the distancing of sound, the nausea and flatulence, the presence of an obvious cause and by their duration.

The *hysterical attack* has to be distinguished from the convulsions of epilepsy. Hysterical convulsions have neither the manner, nor the march of epileptic spasm. The movements in the former are purposive, spectacular, violent, and are liable to be increased by restraint and are abolished completely by inattention. These attacks never occur in sleep ; the tongue is never bitten.

Migraine might possibly simulate epilepsy, when paralysis or sensory auras, or visual hallucinations occur without headache. But while the sensory phenomena of migraine might last for 5 to 30 minutes, those of epilepsy have a duration of seconds only.

Treatment :

Curative : (1) **Calc. Carb** has rickety, tuberculous, scrofulous and flabby symptoms. It has characteristic deficiency of calcium (lime) assimilation ; characteristic relaxation on falling asleep and sweating of the head and neck are chief indications ; the patient dreads an attack and broods over his trouble and becomes melancholic. (In long-standing eruptions, onanism, venereal excess, give first *sulphur* and follow it by *Calc. Carb.*)

(2) **Causticum**. It is indicated in this disease, when there are menstrual irregularities and epilepsy at puberty.

(3) **Bufo Rana**. Epilepsy arising from fright or self-abuse or sexual excesses ; indicated in case of children, when their head is drawn backwards during epileptic convulsion.

(4) **Indigo**. For epileptic convulsions due to worms, when the patient is sad and low-spirited and "*blue as Indigo*" (*Silicea* is also a remedy for epileptic convulsions from worms. Try this if this fails.)

(5) **Cuprum**. A curative remedy for children, when consciousness is not immediately lost ; the eyeballs are rotated ; there is frothing at the mouth with violent contractions of the flexors. Use it for epileptic attacks during dentition.

(6) **Argentum Nit.** When pupils are dilated 4 or 5 days before the attack and there is restlessness and trembling of hands after the attack. Moral causes may lead to the attack.

(7) **Oenanthe**. When there is sudden and complete loss of consciousness, swollen livid face ; frothing at the mouth ; dilated pupils ; locked jaws and cold extremities.

(8) **Kali Brom**. If the patient has been previously treated by allopaths, give this remedy for sometime.

(9) **Camphor**. It will modify the attack, shorten the duration and lessen the intensity. (Other antidotes of Bromides are : Nux. Vom. and Zincum).

(10) **Silicea**. When attacks are brought on by overstrain of the mind or emotions. Feeling of coldness before an attack is characteristic, and the fit is followed by warm perspiration.

(11) **Secale**. For sudden and rapidly recurring convulsions with rapid sinking of strength and paralysis of spinal nerves.

(12) **Cicuta Virosa**. For violent distortions, sudden rigidity followed by utter prostration, fixed staring eyes and loss of consciousness.

(13) **Sulphur**. It is a constitutional and basic remedy and is needed as an intercurrent remedy. (*Psorinum*, if *sulphur* does not help.)

(14) **Hyoscyamus**. Convulsions with twitching and hunger, previous to the attack.

(15) **Stramonium**. It has epilepsy from fright ; sudden loss of consciousness and jerking of the head to the right.

(16) **Belladonna**. For acute cases with cerebral symptoms, flushed face, disturbed sleep, startings and tremors and twitching.

(17) **Agaricus**. If the patient has great flow of ideas and is loquacious after the attack.

(18) **Hydrocyanic Acid**. It is a good remedy for recent cases with clenched hands, set jaws, frothing at the mouth, inability to swallow and the attack is followed by great drowsiness.

V—FUNCTIONAL PSYCHOSES

Schizophrenia**Definition :**

Schizophrenia is a type of mental illness, in which there is detachment from the world without, and a breaking-up of normal psychological connections within. The personality of a schizophrenic is not integrated as in the normal people. Thinking, emotion and conduct are discrepant and morbid, yet there is no impairment of normal intelligence, such as is found, for example, in organic dementia.

Characteristics of a Schizophrenia :

The schizophrenic patients are likely, at least during the acute phase of illness, to experience hallucinations (most commonly in the form of threatening or unfriendly voices) and to express stormy delusions with little or no appreciation of why it is that their ideas are unacceptable to those around them. There are hallucinations and delusions in other forms of mental illness, but there are certain features which are specially suggestive of schizophrenia :

- (1) **Passivity feelings** : in which the patient is convinced that his actions are controlled by some alien power.
- (2) **Thought insertion and thought broadcasting** : in which he feels that other people put thought into his mind, and are able to read his thoughts.
- (3) **Paranoid delusions** : in which he believes that he is surrounded by hostile forces which watch him and secretly intervene to do him harm.

Etiology :

- (1) There is a hereditary factor in majority of cases.
- (2) The constitutional factors which are predisposing causes to this illness are more of a psychological than of a physical kind.
- (3) The Schizophrenics are generally found among the "asthenics" 'lanky' and 'athletic' type.
- (4) Such a personality can also be engendered by the development of faulty habits in life.

(5) The physical precipitants are sometimes 'childbirth' or acute infection.

(6) Intoxication in general has not been found to play any considerable part in the causation of schizophrenia. Schizophrenic symptoms (particularly of catatonic type) can arise in the course of an organic disorder, as in encephalitis lethargica.

(7) Endocrine disorders, especially of the gonads, have been held responsible, but they are possibly manifestations of emotional disturbance.

(8) Recent mental stress may sometimes be the starting point of an attack.

(9) Among contributory factors, age and sex are noteworthy. An onset after 40 is uncommon. Men are affected more than women.

Symptoms :

(1) Schizophrenia may be regarded as a form of maladaptation in which there are characteristic defects of inner harmony in behaviour, thought and emotion. They are not common in adulthood but from puberty onwards they may appear in varied combinations in persons who for years have been introspective and unsociable.

(2) There is difference between mood and utterance, disturbance of conduct, self-absorption and incapacity for sustained thinking along normal lines.

(3) A guarded or artificial demeanor may, however, conceal features, whereas they may be conspicuous in a deteriorated case.

(4) Hallucinations and delirium fill out the picture ; emotional and morbid types of reaction may complicate it.

(5) Preliminary symptoms may be headache, weakness, anxiety attacks, loss of appetite, dysmenorrhoea, which accompany slight oddities of behaviour, such as, rudeness or apparent absence of mind and indecision.

Thought disorder. The patient lacks in ideas, their sequence and relevancy. In fact, it is a mass of jumbled idea, the purpose and meaning of which is not clear. He is often aware of his disordered thought, and feels that his thinking has been interrupted and that some external power controls it.

Delusions arise out of this thought disorder. They are often bizarre. These may occur to him with a sudden conviction which is beyond doubt, *e.g.*, a patient suddenly knows that when his cousin yesterday said that he was reading about Napoleon's divorce of Josephine, it was a suitable way of telling him that his wife was committing adultery with his cousin, whose name is Joseph.

Fixed delusions are common, and are usually of a paranoid complexion. They are often intermixed with hallucinations. He gets into a state of mind in which he feels there is a meaning in everything and that something is going on behind the scene. Sometimes he gives it some religious or cosmic significance. Sometimes he fancies that his neighbours whisper and sneer; often he complains that people work on his mind, hypnotise him for his own good and set about to drive him mad or ruin him.

Intellectual defect does not occur. There is usually no clouding of consciousness. But intellectual laziness or evasion is often conspicuous. The patient may repeat questions in an amusing way, or profess ignorance. Orientation, memory are not as a rule, impaired, though hallucinations, delusions, and lack of interest may interfere with them and consciousness may be disturbed in stupor and excitement. The speech and writing betray the extent of his thought disorder.

Emotional incongruity. This is the chief sign of disturbed affect. The strongest and the rarest of human passions are not infrequent in this illness, *e.g.*, ecstasy, mystic communion, despair, horror, agony of death, salvation etc., are names for these exceptional states. Another feature is apathy (emotional shallowness) and indifference towards his dear and near ones. Sometimes he has violent outbursts of anxiety, rage, love and misery.

Hallucinations are not so frequent. Nevertheless they are common and persistent in schizophrenia. *Auditory ones* occur most often; diffuse somatic ones not infrequently; those of smell, taste and sight more rare. "*Voices*" are sometimes linked so closely with thought disorders that it is so difficult to say whether the patient is relating what he has heard or what he has thought. *The actions and bearing* of the patient are often characteristic. Abruptness or lack of

grace in movement may be seen early. Asymmetrical movements of expression, grimaces, twitching, mannerisms, queer rituals, and tic-like gestures are to be met with. Negativism, talking and acting beside the point, and bizarre escapades may be seen at any stage of illness. During catatonic stupor patients may adopt strange postures, *e.g.*, holding their head off the pillow the whole day or pursing their lips. They may be indifferent or dirty about faeces and urine. The variety of schizophrenic anomalies of conduct are too many to be described here.

Often the most significant effect of illness is upon the *personality* of the patient. Not only is he outwardly different, more peculiar, less understandable and predictable and queer, but in many cases he is also aware of the change and may complain of inner perversion of himself.

None of the *bodily symptoms* are characteristic of the patient's illness, though many occur. Besides cold bluish extremities, exanthems or oedema appear. Seborrhoea is common. Abnormal growth of hair rarely occurs in women. Loss of weight in the acute stages, and fatness in the chronic stages, interruption or irregularity of menstruation and fluctuations in temperature may also be observed.

Clinical Varieties :

There are three main forms :—

- (1) Catatonic (with acute outbursts).
- (2) Hebephrenic and simple (early onset, chronic course).
- (3) Paranoid (fairly late onset, delusional).

These are not exclusive categories, and it is usually profitless to try and apportion a doubtful case to one or the other category.

In hebephrenia, the least common variety, delusions and hallucination are inconsiderable, but abnormal conduct is to the fore; the patient may be silly and mischievous, abruptly eccentric or intert and without initiative. The illness may proceed without acute episodes (dementia simplex) or be interrupted by phase of excitement or obvious insanity, which subside, leaving the patient worse than before.

In *catatonia*, the most favourable variety, the symptoms are plain. Akinetic or hyperkinetic states may appear and subside quickly, sometimes for good or for several years. There are also characteristic disorders of thought and emotion, which may clear up with the abatement of stupor and excitement.

In the *paranoid* form, which is generally rather late and insidious in its development, but less damaging to the personality than the hebephrenic, partial systematisation of the delusions is common in the earlier stages, but may be later swallowed up in the general thought disorder and deterioration. Hallucinations and luxuriant delusions may be conspicuous in the paranoid form.

Diagnosis :

The chronic and advanced cases are easy to diagnose. The early or inconspicuous cases can often be difficult. The chief positive points to look for are :

- (1) Characteristic thought disorder.
- (2) A qualitative change of effect.
- (3) Feelings of being under external influence.
- (4) The development of mental symptoms away from the normal interest and response to the real world.

Diff. Diagnosis :

(1) From *sypilis of the nervous system*, alcohol psychoses, and *disease of the cerebral vessels* ; the differentiation turns on physical findings more than on the mental state. Often the diagnosis of schizophrenia has a discoverable somatic basis, e.g. in alcoholic delusional states, if, after consciousness has become clear again, the toxic constitutional psychosis persists, then schizophrenia is the more probable diagnosis.

(2) **Catatonic excitement** differs from *mania* in that the speech and acts of the latter are intelligible as expressing a general affect and are conformable to the situation in some measure. The onset and cessation are not so abrupt as in catatonic excitement.

(3) **Melancholia** becomes suspect when delusions are repeated without the appropriate affect, and there is a readiness to project responsibility for the illness, to complain of external influence.

(4) The diff. diagnosis from *hysteria* can offer great difficulties. The previous history, the relationship of the outburst to a particular set of happenings, the behaviour in the intervals, the demands upon the attention or response of bystanders must all be taken into account.

(5) **Obsessional states** offer difficulty, when the patient is in doubt as to whether his alien thought or impulse comes from within his own mind or is imposed upon him. If he shows indifference to the occurrence and the content of compulsive ideas, it is suggestive of schizophrenia.

Prognosis :

Schizophrenia is a grave illness. The chances of spontaneous recovery are good in the first two years of the disease. After five years, they are negligible. The more acute the onset, the better are the prospects of recovery. Catatonic states, therefore, have the best outlook. Emotionalism, a family history of deteriorating schizophrenic illness are all favourable symptoms.

Treatment :

Curative. See 'Mania' and 'Melancholia' (affected psychoses) and compare the following remedies :

(1) **Anacardium.** If the patients is inclined to swear.

(2) **Apium Virus.** If the skin is puffy and smooth and when there is inactivity of kidneys.

(3) **Calcarea Carb.** When the patient is flabby, fat and pale.

(4) **Calcarea Phos.** If there is a tendency to cerebral chilblain.

(5) **Phosphoric Acid.** When patients are dull and drowsy with occasional periods of excitement and profuse discharge of urine ; profound mental depression, mental abstraction ; nervous system exhausted with hysterical tendencies.

(6) **Agnus, Causticum, Picric Acid.** In masturbatic dementia.

(7) **Cuprum aceticum, Belladonna and Solanum.** In epileptic dementia.

PARANOID STATES

The words "Paranoia" and "Paranoid" are misused by many. Paranoia has been given a new meaning in modern times. It is described as the endogenous, insidious development of a permanent and unshakable delusional system with complete preservation of clarity and order in thought, will and action. If the illness cleared up, if it showed symptoms of an organic, affective or schizophrenic syndrome, or if it was provoked by external happenings, it could not be paranoia. Thus delimited, the condition is exceptionally rare; so rare indeed, that there is hardly any use of having such a category. Moreover, the cases that were called 'paranoia', have since become schizophrenic. The same is true of **paraphrenia**. Hence it is not profitable to think paranoid states as syndromes of the same order as schizophrenia or affective disorders. They are now on a subsidiary level as stupor, hypochondriasis, anxiety and depersonalisation.

AFFECTIVE PSYCHOSES OR DISORDERS

Definition :

Affective disorders are clinical features which may be subdivided into :

(1) Manic excitement and hypomania (A less intense form of mania).

(2) Melancholia (Depressed state) and mild or neurasthenic depression.

(3) Agitated depression and anxiety state.

Each of these types is related to a more or less characteristic personality and for each, the cause of occurrence may be chiefly environmental or chiefly hereditary. Combinations are frequent or there may be successive appearance of different types, often with an interval between the attacks.

Etiology :

(1) Heredity is the most constant single cause. The bodily habit that is found in a majority of persons with affective psychosis is called 'pyknic'.

(2) It is best seen in persons before the age of 30. The involutional cases show considerable tendency between the ages of 45 and 55.

(3) Physical precipitants, such as toxæmia, acute infections, influenza and pneumonia can play a great part in this illness.

(4) Cerebral trauma may provoke an attack.

(5) Psychological precipitants of the illness may include any recent misfortune, though it may look trivial to others.

(6) There is no clear evidence that early childhood environment is etiologically related to the affective disorders.

(7) After childbirth, affective illness can occur and run a typical and lengthy course.

(8) Life experiences, spread over years, are the common extrinsic cause of the more chronic neurotic forms of affective illness.

Symptoms :

(1) The morbid phenomena are in accordance with the prevailing mood ; thought is less purposively directed to impersonal ends ; the range of interest and preoccupations is restricted ; the whole body or parts of it often receive much of the patient's attention.

(2) Misconstructions abound with consequent ideas of self-reference and persecution as well as misidentifications.

(3) A feeling of inner tension, unrest and excitement persists, however much the patient is carefree or apathetic.

(4) Patients with affective disorder are more irritable and excitable than is normal.

(5) Time sense may be grossly disturbed—time passes slowly.

(6) Perplexity may be conspicuous.

Symptoms of Excitement (Mania) :

Both mood and movement are full of excitement in mania. The mood is mostly one of jollity, likely to become boring or overbearing . Occasionally it turns to anger and resentment, but it is liable to pass into laughter in a twinkling.

Thinking is apparently rapid. Words and phrases are loosely connected. The patient wanders from the point. Jokes and self-praise make up the tenor of his exuberant conversation. He talks a lot about bodily disturbances. He is distractable and his judgement is impaired.

Delusions are less common than distortions and misstatements. People are called out of their names, events misrepresented, and accusations of ill-treatment and persecution made and sometimes long persisted. The more confused and excited the patient, the more likely to be deluded and even hallucinated.

Activity is super-abundant and incessant in severe cases. The patient, if thwarted, gets angry, sulky or violent. Sexual excess and drunkenness may occur and bring much harm. *Sleep* is brief but deep. Food is welcome in mild stages of his activity ; but when the activity is great, the patient does not give time to eat, but instead plays with it, or is diverted to something else.

All these symptoms may vary in degree from mild hypomania to gross mania with incoherent talk.

Symptoms of Depression (Melancholia) :

In milder forms of depression, the patient has less interest and pleasure in life and dreads effort and responsibility. The mood is one of grief and misery. The past, he feels, was full of lapses, the present is painted as wretched and the future is foreseen as hopeless. Anxiety is mixed with his depressed mood, but weeping is less common.

Thinking is more difficult. Conversation is meagre, though some patients are ever ready to tell their troubles, such as unfair examination of their frailties and misfortunes. Some criticize themselves remorsefully. Some bewail their losses. Others regard themselves abandoned. In fact, there are many varieties of misery, and melancholia.

Delusions occur in proportion to the depth of affect, the patients are full of doubts about their troubles. The delusions are the product of their depression. Anxiety is prominent. When the affect is not overwhelming, their insight and judgement are sound.

The common substance of their delusions is their supposed wickedness and secular crime which is to be punished, or loss of property which would mean starvation and beggary, for one's family or mortal or corrupting diseases. The delusions may be grandiose also *e.g.* he thinks he is the chief sinner, or that nobody cares about him. So he goes into a corner to hide himself, so that he may not be persecuted further.

Hallucinations. Some of these are in keeping with the patient's depression and are of much the same nature as delusions. In mild forms of depression, there is no question of delusions or hallucinations. The patient cannot say why he is sad. In chronic forms, a settled and partly justified conviction about ill-health may be obsessional and partly free of the prevailing affect.

Activity is limited *e.g.* dressing, writing a letter takes long time. The most extreme form is stupor or lack of spontaneous activity. Patients become wholly indifferent to cleanliness in defaecation and micturition. *Suicide* is the greatest danger in depression, particularly in respect of older people who have suffered a recent bereavement or physical illness. The manic patients, however, thoughtlessly get into fight and do harm to themselves, but do not get hurt. Deliberate self-mutilation is rare.

Sleep is bad and hard to come. The *appetite* is bad too. Food is constantly refused for this reason. Mild constipation is common. The weight diminishes for lack of food. The skin may be dry and sallow, and in some severe cases pigmented. Menstruation may lessen or cease. Sexual desire is much diminished. In depression, there are wide variations between mild neurasthenics and the grossly deluded melancholic who crave death.

Symptoms of Anxiety :

The mood ranges from uneasiness to panic-stricken terror. The patient's expression varies with the strength of his fear.

Thinking. This is troubled. The disorder shows itself in speech which is full of embarrassment and disquiet. The fear of being run over in the street may be to the fore. The fear of insanity is particularly common.

Delusions are frequent in the grosser forms of *agitation*, which are most strikingly seen in patients of middle life (Involutional melancholia). These patients suffer from many hypochondriacal delusions, such as bowels are blocked, their bodies are about to rot ; the enemies are waiting to tear them ; their families will be tortured ; their names are abhorred for ever ; hell awaits their souls and so on. Hallucinations also occur *e.g.* every sound and sight and smell may mean some pain that is to come, but most of this is illusional colouring of actual percepts.

Activity is much disturbed. There may be sudden attacks of panic in which the patient rushes into the open, and aimlessly wanders about with ceaseless agitation, wringing of hands, rubbing the face, pulling out the hair etc.

Suicide is uncommon among patients with light somatic attacks of fear, and in chronic mild hypochondriacal anxiety, but frequent in grosser forms and in those mingled with depression. *Sleep* is bad on account of the horrifying dreams and the terror into which he suddenly awakes.

Sudden highly somatic episodes of anxiety are common, *e.g.* the patient feels his heart palpitating, his bowels turning over within him ; he sweats ; his limbs tremble ; his mouth is dry ; he feels he will fall or collapse or die ; he turns pale ; his pulse rate changes ; he may want to pass urine or open his bowels.

Diagnosis :

Typical cases are easy to diagnose. The common errors in diagnosis lie in :

(1) Missing organic diseases *e.g.* cerebral arteriosclerosis, or mistaking the manic for a general paralytic.

(2) Forgetting how mixed the symptoms of mania, melancholia and anxiety may be to give rise to pictures that may be mistaken for schizophrenia.

(3) Forgetting the influences of age, general personality, cultural background.

(4) Expecting to diagnose on the present symptoms without regard to previous history and constitution. It may be possible from

the mental state of the patient with affective disorder to exclude an organic basis and to decide only upon physical findings.

Diff. Diagnosis :

(1) *From Schizophrenia.* Diagnosis depends on a picture of the whole illness on the presence of characteristics of thought—disorder, incongruity of affect and bizzareness of behaviour as well as the previous personality and constitution. The distinction between mania and schizophrenia depends upon the setting in which the manic excitement occurs. The more easily one can get into touch with the patient and enter into his mood, and understand what he says and does, the more is it likely to be an affective and not a schizophrenic disorder.

(2) **From obsessional disorder.** The diagnosis may be difficult, when there is localised anxiety or depression with sharp content and good insight. In these respects the two are so closely alike that some authors are in favour of including obsessional disorder in manic depressive group. It is, however, better to keep them distinct, and to discover whether the characteristic subjective rejection of the obsession occurred at its first appearance.

Prognosis :

Both manic and depressive phases may be regarded as benign, since there is a tendency to spontaneous recovery. Mania, schizophrenia or manic-depressive psychoses require prolonged treatment. Excessive drinking and over-indulgence are unfavourable to recovery.

Treatment :

Curative :

(1) **Aconite.** Most useful in mania and melancholia when there are symptoms of fear of death, nervous excitement, restlessness due to mental anxiety, sudden, violent and acute cases, worse in the evening. Patients, tortured by fear get afraid of darkness and ghosts resulting in convulsions and weakness of limbs.

(2) **Agaricus.** The patient is in violent frenzy, has incoherent talking ; shows delusions of power and personal importance ; tremulousness ; mania complicated with chorea.

(3) **Anacardium.** For chronic mania ; the guiding symptoms are : two wills one urging him to do what the other forbids ; irritability with an irresistible desire to swear and curse ; loss of memory ;

imagines that he hears voices far off, or has some fixed ideas, *e.g.* that he is possessed of ghost or devil, or that he is double, or the woman fancies that the child is not her own.

(4) **Arsenicum.** Useful both for mania and melancholia, when there is fear of death, fear of being alone with strong suicidal tendencies and depression, sees ghosts and vermins crawling in bed; acute delirious mania with typhoid symptoms and rapid exhaustion, restlessness, thirst and midnight aggravation. There is a feeling of worthlessness and despair. She thinks she has lost the affection of friends and that she is doomed. The memory is weak; anger and dispute make the patient furious, and there is a tendency of rush of blood to head.

(5) **Belladonna.** This is a remedy for delirious states and acute mania and should be prescribed under the following conditions: wildness, restlessness and desire to cut and tear the clothing. The patient jumps out of bed and strikes those around. He is frightened, when he closes his eyes. Speech and actions are hasty; rush of blood to head, hypersensibility of senses with dilated pupils. The patient sighs, screams and curses; suits buffoonish insanity with ridiculous actions. In melancholia, he is exceedingly depressed, fearful and subject to violent attacks of weeping. This remedy is meant for violent forms.

(6) **Cannabis Indica.** A remedy for visions and illusions in mania, *e.g.* he imagines his body is becoming larger; a small distance seems too far; a minute appears thousands of years. He hears numerous bells ringing; voices come from great distances and seem to enchant him.

(7) **Cantharis.** Troubles when they are reflex from bladder are cured by this remedy. Patients have terrific outburst of rage, bark and bite and are exceedingly destructive. They have hallucinations and converse with people long dead. There is overpowering sexual excitement and desperate and excessive masturbation.

(8) **Cimicifuga.** Successfully used in delirium tremens.

(9) **Hyoscyamus.** Useful in acute mania with abnormal impulses *e.g.* fear of being poisoned. He sings and makes merry and appears silly and pitiable. He uncovers his genitals and imagines that he is pursued by some demon or that someone is trying to take

his life. He is talkative and constantly jumping from one subject to another. The face is slightly flushed. It is suited to manias of a non-inflammatory type. It is a good remedy for effects of jealousy and disappointed love.

(10) **Lachesis**. In this remedy we have great loquacity, irrelevancy of jumping from one subject to another, and fear of being poisoned. He has to think how words are spelt. It suits muttering delirium with dropping of lower jaw and illusions ; *e.g.* imagining that he is under some human control or that he is dead ; melancholia at 'change of life' and worse after sleep.

(11) **Platinum**. There is great dread of death which seems near ; suits hysterical mania where things seem horrible and all serious thoughts are displeasing, objects look smaller or strange and there is indifference. The patient has illusions : everything is inferior to her in body and mind and she looks down upon everything with contempt.

(12) **Stramonium**. Wild and terrifying erotic mania ; loquacity ; becomes religious and prays ; laughs and talks foolishly and tries to escape ; outburst of violence with ideas of persecution ; nymphomania, mania for light and company ; hallucinations of hearing (hears music and men talking) ; symptoms are changeable ; full of joy now and full of rage then ; proud now and then dull.

(13) **Sulphur**. Religious mania or melancholia ; most anxious about his own salvation, but indifferent to that of others ; imagines that 'though clad in rags' he is clad in gorgeous attire. He is an irritable, chronic grumbler who is forgetful and will stop to think how a word was spelt.

INVOLUTIONAL MELANCHOLIA

Definition :

Involutional melancholia is a condition of depressive illness occurring in the involutional (middle) period of life in a person not previously subject to affective disorder, and characterised by special tendencies towards agitation and hypochondriasis, the last one sometimes being of a fantastic kind.

Etiology :

(1) Involutional melancholia, though generally allied to manic-depressive psychoses, occasionally becomes schizophrenic.

(2) This type of illness occurs in a personality, characterised by meticulousness, narrow interests, marked by religious trends, penuriousness (niggardliness), rigidity and an absence of warmth in social contacts.

(3) Involutional melancholics view the past with remorse, and the further with dismay.

(4) Predisposing causes are :

(i) Bereavement.

(ii) Threats of ill-health with the prospect of restrictions of activity or invalidism and financial reverses.

Symptoms and Signs :

(1) The onset is usually gradual, insidious and varies in intensity.

(2) The patient is over-concerned with abdominal symptoms, such as indigestion, fluttering sensation in the stomach, sense of incomplete evacuation of the bowel, flatulence, fulness etc.

(3) As time elapses, these symptoms are liable to become fantastic, making the patient lose his activity and interest and disturb his sleep.

(4) Often weight is lost, appetite falls, and hypochondriasis becomes prominent.

(5) This established depression makes the patient active, restless, and talkative but extremely unhappy. He weeps and moans with wringing of hands and complains constantly of the symptoms and is asking for help.

(6) The complaint reaches a *delusional stage*, such as believing that bowels were blocked or that his system was affected by cancer, or syphilis or that his constitution was ruined resulting in falling into a mood of hopelessness of recovery and suicidal ideas.

(7) Apart from these delusions, the patient believes himself to be actually dead or in the hell, or about to undergo some punishment. Delusions of guilt, unworthiness and financial ruin are common.

(8) Hallucinations are not infrequent, auditory, olfactory ; hallucinations taking the form of voices containing accusations, criticisms and giving warning of worse to come.

(9) Physical symptoms may be loss of weight, constipation, tired looks, pale face etc.

Prognosis :

There is a danger of committing suicide in these cases. As it takes about a year or more to show actual depression, a number of cases become chronic and some achieve recovery.

Treatment :

As given in previous pages.

CHAPTER—XII

DISORDERS OF NUTRITION

(VITAMIN, IRON & PROTEIN DEFICIENCY)

DISORDERS OF NUTRITION

INFANTILE RICKETS (RACHITIS)

Definition :

Rickets is a systemic disorder of early childhood resulting from lack of vitamin D and characterised by deficient ossification of the growing parts of bones, muscular weakness and head sweating. In some cases, it is accompanied by tetany (muscular cramps.)

Etiology :

(1) Human skin contains a substance 7-dehydrocholesterol which is activated by ultra-violet light and converted into vitamin D which is then absorbed into the blood circulation. As lack of sunshine in temperate zones with its filtration in smoke or glass prevents the formation of vitamin D in adequate quantity from the sun's rays, rickets is likely to appear both among children and adults, unless vitamin D is provided in the diet.

(2) An infant, when fed on milk from breast or cow, does not get more than 10 to 20 I.U. (vitamin D) per pint. As he needs at least 40 I.U. (vitamin D) everyday, additional provision is necessary.

(3) Rickets is particularly liable to occur in premature babies when the growth is rapid.

(4) Well-nourished infants on a high carbohydrate diet may show early signs of rickets in the first 6 months.

Symptoms and Signs :

The symptoms which appear between 3 to 12 months are :

(1) Delayed dentition and walking, or the child cannot sit up.

(2) Gastro-intestinal disorders (Chronic diarrhoea with pale, offensive stools).

(3) **Bronchitis.**

(4) Sweating about the head, especially, when asleep and restlessness, irritability, and the tendency on the part of the child to kick off the bed clothes at night.

Later :

(5) There is a typical enlargement mostly of the ends of long bones. The first to show this enlargement are the rib-ends producing an appearance of beading. The long bones often curve, the convexity of the curve being outwards. The spine has a general backward curvature when the child sits up. The head is square-shaped.

(6) The body may be emaciated, or plumpy and flabby and the chest is deformed.

(7) The liver and spleen are both enlarged in advanced cases, and the belly is prominent.

(8) The joints are loose and permit extreme mobility.

(9) There is always gastro-intestinal trouble.

(10) The nervous system is unstable as sometimes shown by convulsions and spasms.

(11) Sometimes the skull is somewhat enlarged, elongated, and flattened on the vertex.

Diff. Diagnosis :

Rickets is distinguished :

(1) **From hereditary syphilis** by following symptoms in the latter :

(i) Enlargement of epiphysis occurs usually in one bone.

(ii) The history of syphilis is present.

(2) **From infantile paralysis** by the fact that the latter exhibits muscular wasting sooner than rickets.

(3) **From infantile scurvy** by the swelling of the shaft more than that of the ends of long bones, which is painful.

(4) **From hydrocephalus by the fact that** the head bulges in all directions, and assumes a globular form, instead of the square shape in rickets.

Prognosis :

The disease is amenable to treatment before ossification changes take place. If untreated, it leads to deformity. Death occurs when there are complications of pneumonia, bronchitis, gastro-intestinal disorders and convulsions. Flat foot, low leg, and knock knee are often seen.

Treatment :

General : Diet should consist of plenty of milk, butter, cream, cod-liver oil and eggs, as they are sources of vitamin D which promote the absorption of calcium from the gut.

Curative :

(1) **Silicea.** Curvature of bones ; rickets ; offensive sweat, worse from cold.

(2) **Phosphorus.** Rickets, sour sweat ; curvature of spine.

(3) **Phosphoric Acid.** For extreme debility in rickets ; sensation in the bones as if scraped with a knife.

(4) **Calc. Phos.** Rickets of fat children.

(5) **Sulphur.** Rickets ; defective assimilation ; great appetite but poorly nourished.

Other remedies are : *Arsenicum* (For puny children) ; *Tuberculinum* (For children with T.B. history) ; *Iodine* (The child eats much, still he is thin) ; *Thuja* (For vaccinal cases).

OSTEOMALACIA

(Adult Rickets)

Definition :

Osteomalacia is generally confused with *Osteoporosis*. These two are chronic disorders of the skeleton. Although they have similar effect on the mechanical function of a bone (because they weaken the parts affected), their pathology and chemistry are different.

Osteomalacia, which means softening of the bone, is primarily due to a deficiency of vitamin D, and to lesser extent of calcium or both. This results in a failure to lay down calcium and phosphorus in the organic matrix of the bone. Hence the ratio of calcium phosphate to matrix is reduced.

Osteoporosis, on the other hand, is an atrophy of a bone and is believed to be due to defective formation of bone substance (matrix) which leads to a reduction in the total mass of the bone. In other words osteoporosis may be defined as a disorder of too little bone of normal composition. In contrast to osteomalacia, the ratio of calcium phosphate to matrix is normal.

Both these conditions occur in old people in all countries and cause much suffering.

Etiology :

(1) Osteomalacia is the adult counterpart of rickets. It has recently been shown that osteomalacia is relatively a common disease in old people, especially women, and that it occurs much more frequently than scurvy or rickets.

(2) It generally affects such women as are of child-bearing age, who live on poor cereal diets, devoid of milk, and who are kept in doors all day, and seldom see the sun, and who, by repeated pregnancies, become depleted of calcium.

(3) The disease may be due to malabsorption from any cause, including previous operations on the gastro-intestinal for the production of the portion of the stroma of the red corpuscles and the synthesis of globin. Since these materials must be obtained from food, it is not surprising that nutritional anaemias are common, wherever the diet is unsatisfactory.

IRON DEFICIENCY ANAEMIA

Nutritional Hypochromic Anaemia

(See Chapter VII also)

Definition :

This is the commonest form of anaemia, and is usually due to chronic loss of blood, although inadequate iron intake and malabsorption account for a number of cases.

Etiology :

There are several causes of iron deficiency anaemia which may be summarised as follows :

(1) **Inadequate iron intake.** This is particularly likely in infancy and old age when the diet may be defective or is not properly assimilated.

(2) **Inadequate absorption of iron from the gut.** This occurs with gastric and bowel lesions.

(3) **Increased demand for iron.** At certain times in life, particularly in menstruating women and during pregnancies, increased amounts of iron are needed.

(4) **Chronic haemorrhage.** This is obvious, unless the bleeding is from the gastro-intestinal tract, the common lesions being carcinomas of the stomach or large bowels, hiatus hernia, peptic ulcer, regional enteritis, ulcerative colitis and haemorrhoids.

Clinical Features :

(1) With anaemia, diseases like glossitis, stomatitis, dysphagia and impairment of gastric secretory function, atrophy of mucosa of pharynx are present.

(2) Nails become dry and brittle.

(3) In long-standing cases, spleen may be palpable.

(4) Blood examination shows hypochromic microcytic anaemia and haemoglobin low.

(5) The bone-marrow shows a normoblastic reaction.

Diagnosis :

The differential diagnosis from other types of anaemia depends on accurate blood examination. When the deficiency of iron has been traced, one should look for its causes—bad diet, haemorrhage, malignant disease, tuberculosis and other infections.

Prognosis :

Unless the anaemia is generally well-advanced, significant symptoms do not appear easily. Hence the disease follows a chronic course. There is, however, no danger to life, though the disease may lower the efficiency and resistance of the patient to infection.

Treatment :

See under "Anaemia" in chapter VII.

MEGALOBLASTIC ANAEMIA

Definition :

Megaloblastic anaemia has large primitive red blood cells in which there is deficiency of vitamin B_{12} and *Folic Acid*.

Etiology :

(1) The cause may be inadequate intake of vitamins B_{12} , which generally occurs in rigid vegetarian diet. This is not true of folic acid of which the major source is fresh vegetables and which is easily destroyed in cooking. The folic acid deficiency is commonly found in the elderly poor people with *inadequate diet*.

(2) **Inadequate absorption** is also due to the lesions of the stomach and small bowels. Vitamin B_{12} cannot be absorbed, unless intrinsic factor produced by the stomach is also present. Folic acid is absorbed in the jejunum. Hence the lesions in jejunum prevent its absorption and cause megaloblastic anaemia.

(3) **Excessive demand** of folic acid is felt during pregnancy. Unless this demand is met by additional food, there is deficiency of folic acid. For this reason folic acid should be given together with iron to all pregnant women.

(4) **Inability to utilise Folic Acid**. This occurs when patients receive continual antiepileptic treatment by various drugs.

(5) A family history of pernicious anaemia may sometimes be a common cause.

Clinical Features :

(1) Deficiency of B_{12} and folic acid produces megaloblastic anaemia with leucopenia.

(2) Vitamin B_{12} deficiency alone causes the neurological changes of peripheral neuropathy and sub-acute combined degeneration of the spinal cord, with both posterior column and pyramidal tract lesions.

(3) Skin eruptions, epistaxis, bleeding gums occur in a few cases.

Diagnosis :

Diagnosis of megaloblastic anaemia is made by the changes in the blood and the bone marrow. The following tests have to be carried out to determine which variety of megaloblastic anaemia is present :

- (1) Serum Folate and B₁₂ or folate level test.
- (2) Tests of vitamin B₁₂ absorption.
- (3) Tests for Folic acid deficiency.

Diff. Diagnosis :

The blood picture resembles pernicious *anaemia*, and the bone marrow is usually megaloblastic and when complicated with iron deficiency may have normoblastic reaction. The difference between the two is made out by the following symptoms and signs in pernicious anaemia :

- (1) The elderly age.
- (2) Achlorhydria.
- (3) Marked loss of weight.
- (4) Bulky, pale, fatty stools.

Treatment :

See chapter VII (Anaemias). Also study :

- (1) Arsenicum
- (2) Ferrum
- (3) Helonias
- (4) Cuprum. M.
- (5) Pulsatilla
- (6) Natrum Mur.

BERI-BERI**Definition :**

Beri-Beri is essentially a nutritional disorder arising from excessive use of polished milled rice diet. It is characterised typically by congestive heart failure and oedema (wet Beri-Beri) and/or multiple symmetrical polyneuritis, especially involving the lower limbs,

progression to atrophic paralysis, sensory loss and ataxic gait (dry Beri-Beri). The third form is infantile Beri-Beri. The fourth form is the cerebral Beri-Beri due to a brain lesion resulting from vitamin B₁/(thiamine) deficiency.

Etiology :

The disease is especially prevalent amongst people eating polished milled rice. But it may be caused by any dietary, deficient in the antineuritic vitamin B. During milling, the husk and the germ of rice, which are rich in protein, fat, phosphorus and vitamin B₁ are removed. Hence milled rice contains practically no vitamin B, and causes this malady. The disease may be precipitated by diarrhoeal diseases, by pregnancy, by lactation and by hard manual work.

Symptoms and Signs :

The pathological changes are commonly found in the :

- (i) nervous tissue,
- (ii) myocardium,
- (iii) gastro-intestinal tract.

The symptoms and signs are of two kinds :

(1) Involving neuromuscular system, showing peripheral neuritis, a degeneration without inflammation.

(2) Involving cardio-vascular system, associated with neuritis of the vagus and the sympathetic nerves and oedema of the heart muscle. Either of these forms may occur alone. But generally there is gastro-intestinal trouble and polyneuritis as well as oedema and other evidences of cardiac failure. The onset is gradual and symptoms develop within a period of two to three months without fever. Gastro-intestinal disturbances are moderate. In the first type, known as '*Dry Beri-Beri*', there is no oedema. The dominant feature is wasting and weakness of muscles. There are knee-jerks. The calf-muscles are tender and areas of hyperaesthesia and anaesthesia develop. Gait is ataxic, but the toes are dragged on while walking. The foot is raised high and then brought down with a thump. Wrist drops occur. In the second type, known as '*Wet Beri-Beri*' feet, legs, and later, the serous cavities are oedematous in various degrees. Dyspnoea, dilatation of the right heart, associated with systolic murmurs, and, perhaps, tachycardia and a rapid and a low tension

pulse develop. Urine is usually free from albumen and casts. Symptoms of peripheral neuritis are generally present.

Essential Features of Each Type :

(a) **In Wet Beri-Beri**, the heart is found greatly dilated, especially on the right side ; there is general oedema of the tissues and serous effusion into the body cavities, often most marked in the pericardium.

(b) **In Dry Beri-Beri**, there is wasting of soft tissues. In long-standing cases, there is degeneration of both sensory and motor nerves. The vagus and other automatic nerves may be affected. Degenerative changes both in the tracts and the grey matter are found, but they are not so marked as in the periphery nerves.

(c) **Infantile Beri-Beri**. This type occurs in breast-fed infants between the 2nd and 5th months. It is due to mother's diet being deficient] in the thiamine content (B_1). The illness usually starts acutely, and the infant cries a lot, and may have meningitis or convulsions.

(d) The **cerebral** form results from lack of thiamine content (B_1) or sometimes from chronic alcoholism. It begins with anorexia and vomiting, followed by diplopia, nystagmus and ptosis and ending in coma and death.

Diff. Diagnosis :

The dietetic history, and multiple cases of neuritis, associated especially with oedema, are the important features in differentiating Wet Beri-Beri from hook-worm disease, cardiac failure and nephritis. Dry Beri-Beri is distinguished from polyneuritis by dietary history and by measuring thiamine excretion in the urine.

Complications :

- (1) Heart failure.
- (2) Pulmonary oedema.
- (3) Oedema glottis.
- (4) Diarrhoea.
- (5) Effusion in serous cavities.

Prognosis :

If dietetic treatment is instituted early, the prognosis is good. Acute pernicious cases become invariably fatal. Severe vomiting is a bad sign. Death may occur suddenly from cardiac failure.

Treatment :

General : Alcohol should be stopped and B₁ rich diet should be given. In the wet type, salts and fluids should be restricted.

Curative :

(1) **Arsenicum**. Numbness, pain, oedema, anaemia in chronic cases.

(2) **Elaterium**. Much yawning and stretching ; vomiting and diarrhoea which is copious in wet Beri-Beri.

(3) **Lathyrus**. Beri Beri with rigidity of muscles and continuous yawning and sleepiness.

(4) **Rhus Tox**. If *Arsenicum* fails, use this remedy for symptoms.

(5) **Phosphorus**. Paralysis, wasting and rheumatic stiffness.

(6) **Gelsemium**. Paralysis of lower extremities.

(7) **Sepia**. Swelling of whole body ; short breath ; fever with sweat.

PELLAGRA**Definition :**

Pellagra is a deficiency disease, often in association with protein deficiency in the body, occurring especially in maize eaters and characterised by cutaneous, gastro-intestinal and nervous lesions, starting in spring and autumn months, getting better in winter but relapsing again year after year.

Etiology :

The disease is prevalent in some parts of India, Japan, Malaysia, Southern Europe, Central America, and some parts of Africa among the poorer people of either sex. It affects usually those people who

take food low in vitamin B₂ complex and protein contents. People of any age or sex are susceptible. The shortage of B₂ complex (vitamin niacin or nicotinic acid) and protein leads to the deficiency of the amino-acid which is essential for the synthesis of nicotinic acid.

Symptoms and Signs :

(1) The deficiency causes pathological changes in the alimentary canal, liver and the central nervous system.

(2) The body is greatly emaciated.

(3) The skin becomes erythematous in the superficial layers, and later on has dermatitis, with pigmentation.

(4) Ulcerations in the mouth, tongue, smaller intestines, colon and rectum are seen. The heart, the liver and the spleen atrophy.

(5) The tracts of spinal cord and cerebrum also degenerate progressively.

The disease starts with early symptoms of dyspepsia, loss of appetite and weight, weakness in legs, nervous prostration. This is soon followed by painful stomatitis and glossitis, a burning sensation in the tongue, pharynx, oesophagus and in the stomach, leading to abdominal discomfort, flatulence and in chronic cases, a persistent diarrhoea. Eruptions start suddenly as an erythema, and are red and swollen. Itching and burning is often present. Later on, these red, swollen patches leave marginated, rough, thickened, pigmented areas and aggravate the condition. Mental changes like irritability, depression, faintness, giddiness, vertigo, and a burning sensation in hands and feet appear early. Paraplegia with sensory disturbances, chorea, athetosis etc. appear later. Ultimately dementia follows.

Diagnosis :

When the symptoms have well-developed, pellagra is characterised by *diarrhoea, dermatitis, dementia and finally death* (with a tendency to commit suicide by drowning).

These features occur only in the well-established pellagra disease which develops after a fairly long time. Hence the early symptoms and a reliable history of dietary deficiency are most

important in making a correct diagnosis. Generally, there is the history of having lived for a long time on :

- (1) maize or other cereals, poor in high protein content,
- (2) a diet high in fats and carbohydrate and poor in protein and vitamins (when one is having no red meat, eggs, milk, fish, fresh vegetables and fruits).

Prognosis :

Cases of acute types terminate quickly. Others develop mental symptoms. Chronic cases may continue for 20 years.

Treatment :

General : Diet should consist of animal proteins, milk, liver, eggs, lean meat, yeasts, marmite. The intake of 3000 calories is necessary : 120 to 200 gm. of protein, non-irritating cereals, rice, potatoes, bread, butter. Rest is absolutely necessary.

Curative :

(1) **Arsenicum Sulphuratum Ruber**. Pellagra, with sciatica and itching in various parts.

(2) **Mercurius Sol.** Spongy gums ; tremors of pellagra.

(3) **Rhus. Tox.** Erysipeloid condition of the skin.

Other remedies may be :

(1) **Arsenicum**.

(2) **Gelsemium**.

(3) **Secale**.

(4) **Selenium**.

(5) **Bovista**.

(6) **Pedicularis Can.** (symptoms of tabes and spinal irritation).

(7) **Graphites and Hepar** (eruptions and fissures).

SCURVY (SCORBUTITIS)

Definition :

Scurvy is a deficiency disease, caused by lack of vitamin C (Ascorbic Acid) in the diet, characterised by having two points of resemblance to the diseases of the haemopoietic system. viz.

- (1) Marked capillary bleeding.

(2) Progressive anaemia, ulceration, debility, and failure of wounds to heal.

The initial features are fatigue and haemorrhage, followed sometimes by oozing at the gums, or large red blotches on the skin, ecchymosis among the adults, while the children have only periosteal painful bleeding.

Etiology :

Ascorbic acid is essential for the proper formation of a substance called *collagen*, for the growth of the white fibrous tissues, bones etc. Its absorption from natural sources being inadequate and unreliable, the human organism has to depend on the extraneous sources for its essential requirements. If this supply is cut off for a sufficiently long time, scurvy supervenes, and takes about 4 to 8 months to develop clinical signs. The predisposing cause is also attributed to living in unhealthy surroundings. Scurvy occurs in young children who have been fed on pasteurised or dried milk and also among adults, who take freak diets (not taking vegetables and fresh fruits) or old men and women who live alone.

Symptoms and Signs :

(a) Infantile Scurvy :

(1) The child is pale, restless, fretful, refuses to take food and does not like to be handled.

(2) Lower limbs are especially painful.

(3) Growth of bones stunted.

(4) Gums do not bleed, as in adult type.

(5) Blood in urine is common.

(6) Marked anaemia.

(7) Sometimes scurvy results from rickets.

(8) The earliest symptoms are weakness and lassitude and dizziness on standing up.

(b) Adult Scurvy :

(1) The outstanding features are the involvement of gums, which are moderately swollen, ulcerated, spongy and bleeding.

(2) Hair roots have tiny red spots in thighs, forearms and abdomen.

(3) Sometimes ecchymosis and petechiae occur.

(4) Bleeding from mucous membranes, especially from the mouth and the nose, causes anaemia.

(5) Haemoglobin low and fall in blood plasma.

(6) Other signs are loss of appetite, emaciation, mental depression, ulcers which do not heal easily.

(7) Spleen is usually enlarged.

Diagnosis :

The disease can be established by the absence of ascorbic acid in the plasma. Mild cases may be mistaken for purpura but the prolongation of the bleeding time and the diminished number of platelets should establish the diagnosis if this disease is present.

Treatment :

General : (1) Use lemon and lime juice freely.

(2) Milk, fresh meat and vegetables must be used.

(3) Cut off sugar from infant's diet to some extent.

Curative :

(1) **Agave Americana.** Countenance pale and dejected ; gums swollen and bleeding ; left leg from ankle to groin covered with dark purple blotches ; leg swollen, painful and of stony hardness ; pulse small and feeble ; appetite poor ; constipation.

(2) **Acetic acid.** Anaemia with dropsical conditions ; haemorrhage from any part. Hectic fever with dieningh night sweats.

(3) **Arsenicum.** The gums bleed readily ; faetid smell from the mouth ; violent thirst which obliges him to drink frequently in small quantities ; offensive diarrhoea, excessive debility ; stiffness and immobility of the knees and feet with violent tearing pains ; worse about midnight ; better from external warmth, great despondency and restlessness.

(4) **China.** Inertia ; excessive debility ; haemorrhage from the mouth, nose and intestines ; great desire for sour things ; diarrhoea.

(5) **Mercurius sol.** Bleeding gums of sickly appearance ; bluish colour of inner cheeks ; faetid smell from mouth ; faetid ulcers on legs which become specially putrid ; spongy, bluish, readily bleeding ulcers.

(6) **Phosphorus.** Gums bleed easily, and stand off from the teeth ; sore excoriated spots on the skin ; ecchymosed spots on skin.

(7) **Muriatic acid.** Swelling of gums ; scorbutic gums.

(8) Also compare : *Ferrum Phos.* ; *Natrum Mur.* ; *Carbo Veg.* ; *Nitro-muriatic acid* ; *Alumina.*

(9) **For Scurvy rickets.** *Bryonia* ; *Phosphorus* ; *Mercurious Sol.* ; *Rhus Tox.*

PROTEIN CALORIE MALNUTRITION

Introduction :

This label (PCM) covers a wide group of very important diseases which together constitute the most important children's public health problem in emergent tropical countries.

The syndromes range from *kwashiorkor*, resulting from protein deficiency in the presence of adequate calories intake (usually largely in the form of carbohydrates) to *marasmus* arising from over-all reduction in protein and calories. *Kwashiorkor*, and *marasmus* in which the calorie intake is relatively low, occur subsequent to weaning. *Marasmus* is commonly seen in younger age group amongst infants.

KWASHIORKOR

Definition :

Kwashiorkor is the local name (meaning the deposed one) given to a malnutrition syndrome, first described in African children. A similar clinical pattern is now known to occur all over the world, especially in the tropics.

The syndrome appear most commonly among children between ages of 6 months and 4 years. It is particularly common in late breast-fed, weaning or recently weaned children. It may occur in other age groups, and even in adults.

Distinguishing Features :

Apathy and peevishness, retardation of growth, changes in the pigmentation of the skin and in the pigmentation and texture of the hair, muscular wasting, oedema and fatty, necrotic or fibrotic changes in the liver. Nutritional dermatoses are commonly but not invariably present.

Etiology :

Kwashiorkor is generally considered to be the result of severe protein deficiency arising from the intake of a diet low in protein and relatively high in calories, usually supplied as carbohydrates. Secondary deficiencies of individual vitamins may develop. Many cases are complicated by the effects of malaria, helminth infections (especially hookworm) and bacterial infections. These complications are not direct etiological factors, although they may considerably modify the clinical picture.

Symptoms and Signs :

The following features are common :

- (1) Retarded growth.
- (2) Muscular wasting and oedema.
- (3) Alteration in skin and hair pigmentation and texture.
- (4) Biopsy or necropsy (examination of a dead body) reveals the liver changes (already described).
- (5) Various forms of nutritional dermatosis, but are not an essential pattern.
- (6) Gastro-intestinal disorders. Many patients suffer from indigestion and diarrhoea.
- (7) Cheilosis, fissures at angles of mouth, general stomatitis, changes in eyes and photophobia.
- (8) Anaemia is present in some degree.
- (9) In severe cases there may be macrocytosis.
- (10) Serum albumin is low.

Diagnosis :

The diagnosis of kwashiorkor is usually made at the oedematous stage. Dermatoses and vitamin deficiency signs are not essential for the diagnosis. Signs of deficiency of a particular vitamin are very common complicating factors of the syndrome in a particular area and account for some of the wide variation of clinical pattern *i.e.* the combination of retarded growth, especially in infants during weaning and after, alterations in skin and hair pigmentation and oedema, usually with some dermatosis.

Kwashiorkor must be distinguished from *marasmus*. The relation between the two seems to depend largely on the adequate calorie intake and the excess carbohydrate in the diet in the former. In both cases there is an acute deficiency of protein.

Prognosis :

The mortality in untreated cases is very high. But response to treatment is fairly good.

MARASMUS

Marasmus arises from subsistence on a diet which is deficient over-all, and in which there is no excess of carbohydrate. The marasmic child is much underweight. The muscles are grossly wasted. The skin is thin to the pinch, since the sub-cutaneous fat is lost, and is tightly stretched over the bony prominences and the protuberant belly. Oedema may occur in the extremities, but is not pronounced. Changes do not occur in the hair and skin texture, unless there are concurrent specific deficiencies. The liver and pancreas are usually normal.

Marasmic children usually retain their appetites and are consequently easy to feed. They can usually move rapidly from a diet of 50 calories and 1.5 G. protein to 120-150 calories and 3.5 G. of protein per kg. body weight per day.

Intercurrent infections, especially pneumonia, are dangerous and require prompt and effective treatment. Malaria must be diagnosed and treated immediately. Worm infections can be left until the patient has recovered. Anaemia should be dealt with as in kwashiorkor.

Treatment :

(1) **Calc. Phos.** It is the chief remedy. It corresponds to thin, emaciated children with tendency to glandular and bone diseases, large heads and defective body development. The child vomits persistently and has a green, undigested stool with much flatus.

(2) **Calc. Carb.** Defective nutrition with acidity, sour stools, vomiting of milk, sweat in face and scalp ; feet damp and cold ; enlargement of gland and voracious appetite.

(3) **Arsenicum.** It has diarrhoea and undigested stools on beginning to eat or drink, with debility, irritation and restlessness.

(4) **Phosphorus.** It has marasmus with chest oppression, feeble heart, dyspnoea and exhausting copious diarrhoea and sweat.

(5) **Iodine.** Extreme hunger, yet emaciation is there with some fever, great sluggishness and torpor ; face yellow and shrunken.

(6) **Natrum Mur.** Marasmus with defective nourishment and thin neck, much appetite and thirst ; mouth and throat dry ; constipation ; craving for salt.

(7) **Mag. Carb.** Milk causes pain and is vomited out ; stools, sour and green as grass ; glands swollen and abdomen bloated.

(8) **Mercurius.** Emaciation with jaundiced skin, green, sour diarrhoea and suppurating glands ; sweat offensive and gums unhealthy.

(9) **Sulphur.** Much heat on the head with cold feet ; hard, distended abdomen and dry skin. Fingers are thin, stools acrid, flatus offensive, eruptions, glands swollen ; hungry at 11 a. m. (*Psorinum*, if *Sulphur* fails).

(10) **Hepar Sulph.** Digestion weak ; diarrhoea, worse during day ; stools, green, slimy, sour ; whole body smells sour ; cold from least draught.

(11) **Baryta Carb.** Weak memory with sluggishness ; neck glands swollen ; the child wants to eat all the time ; sweet things and fruit not liked ; a little food satisfies the child.

CHAPTER—XIII

LABORATORY METHODS

*(CLINICAL, PATHOLOGIC, BACTERIOLOGIC
PARASITOLOGIC, SEROLOGIC AND
CHEMICAL METHODS)*

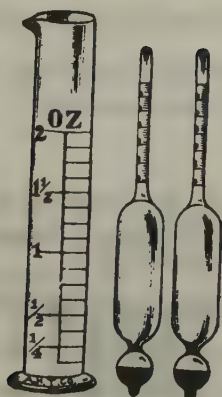


Fig.—I The VOGEL Urinometer

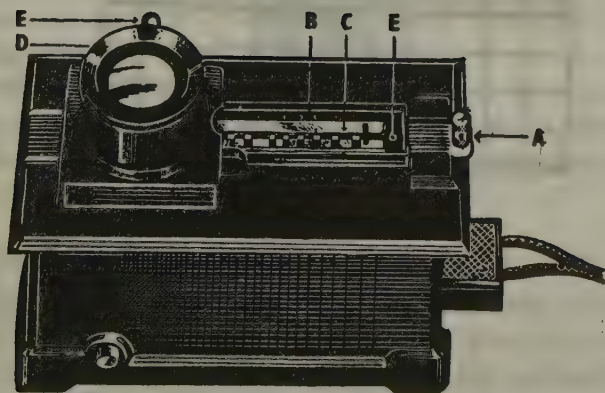
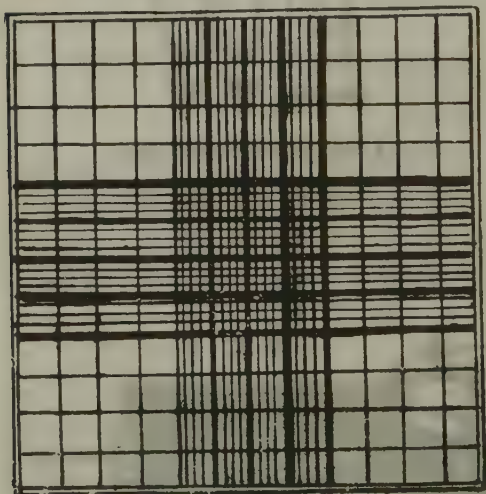


Fig.—II—Haden-Hansser Hemoglobinometer

A—Movable corner ; B—Comparator slide ; C—Cover glass ; D—Reading microscope ; E—Wedge shaped channel ; F—Shutter.

Fig. VII - Neubuer's ruling Chart
16 Big and 256 Small Squares
in the centre .



LABORATORY METHODS

I—CLINICAL PATHOLOGIC METHODS

Physical and Chemical Methods of Urine Examination

Normal Urine :

Adults void 1000 to 1600 ml. per 24 hours, children 3 to 4 times as much as adults per kilogram of body weight. During the day, 2 to 4 times is as much voided as during the night. It is normally clear, when freshly voided, but may be clouded due to phosphates. All urine becomes turbid or cloudy on standing. The odour normally is aromatic and ammoniacal on decomposition. Peculiar odours may be due to various articles of diet and drugs. The colour is yellow-amber due to pigments. The reaction normally is acid due to acid phosphates and organic acids. Occasionally it is alkaline due to alkaline salts. All urine becomes alkaline on standing. The specific gravity varies from 1.010 to 1.030 according to solids in solution. Albumin and globulins are about 0.075 gm. in 24 hours and normally proteins are absent ; urea is 20 to 30 gm. in 24 hours' urine on average diet. Uric acid is 0.4 to 1 gm. per 24 hours' urine ; lactose is in traces ; calcium is 0.06 to 0.2 gm. per 24 hours ; sodium chloride is 10 to 16 gm. in 24 hours' urine ; phosphorus is 2.5 to 3.5 gm. per 24 hours ; spermatozoa are usually absent.

Collection for Physical Examination :

It is desirable to collect a sample each for both day and night urine, viz. urine voided between 8 a.m. and 8 p.m. and that voided between 8 p.m. and 8 a.m. In polyuria, the amount voided is abnormally increased ; in oliguria, there is abnormal decrease ; in anuria, there is total cessation ; in nocturia, there is frequency of urine (above 500 ml.) at night.

Colour :

This may change from presence of blood, melanin, abnormal pigments, various drugs and poisons.

Odour :

Ammoniacal odour may be due to decomposition of proteins ; fruity or sweetish odour probably due to acetone, putrid due to hydrogen sulphide from decomposition of pus, faecal due to contamination with faeces or *E. Coli*.

Transparency and Sediments :

Fresh urine is usually clear or transparent. It may be cloudy due to pus or phosphates and with bacteria. A pinkish sediment is usually due to an excess of urates, while a white sediment is an indication of phosphorus.

Reaction :

The slightly acid reaction of normal urine is tested by dropping blue litmus paper in urine, which will turn red, when it is acid. Cereals, meat and fish tend to increase the acidity of urine, while most fruits decrease it. Again a diet with high protein or high in fats also produces acidity, and so do fasting and starvation.

Specific Gravity :

In health, the average varies from 1.015 to 1.025. As a general rule, the greater the quantity of urine is passed, the lower is the specific gravity. During fever the S.G. is raised (diminished urine). In diabetes mellitus the output of urine is greater, but the S.G. instead of being low, is high.

METHODS OF DETERMINING SPECIFIC GRAVITY

The specific gravity of urine is measured by a urinometer as follows : (See Figure I)

- (1) Fill the cylinder without producing bubbles. Take the specific gravity without first mixing the urine.
- (2) Float the urinometer, so that it does not touch the sides or the bottom.
- (3) Make the reading from the bottom of the meniscus.

(4) The instrument is usually adjusted for readings at 22.5°C .

(5) The Vogel urinometer is more accurate and consists of two spindles graduated respectively from 1.000 to 1.025 and from 1.025 to 1.060.

Chemical Examination of Urine :

TESTS FOR ALBUMIN (PROTEIN) IN URINE

Albumin and (globulins) is an important constituent of protein. All tests for urine depend upon the precipitation of protein by chemical agents for coagulation by heat. The urine for testing should be clear and so it should be filtered. Albuminous urine foams markedly on shaking.

(a) Heat and Acid Test :

(1) Boil 5 ml. of clear urine in a thin-walled test tube by a Bunsen burner. The tube may be simply held by a strip of paper.

(2) Add 3 to 5 drops of acetic acid, a drop at a time or 1 to 3 drops of concentrated acid.

(3) A white cloud of flocculant precipitate denotes the presence of albumin. The addition of too much acid may dissolve faint traces of albumin and give a false negative reaction.

(b) Sulpho-Salicylic Acid Test :

This test is highly sensitised and recommended for routine work :

(1) Place 1 ml. of urine in a test tube.

(2) Add 1 ml. of the reagent prepared by dissolving 30 gm. of sulpho-salicylic acid to 1000 ml. of water.

(3) Allow it to stand for 10 minutes.

(4) If cloudiness does not develop, albumin is absent and the reaction is negative. Any cloudiness indicates the presence of albumin, the density depending upon the amount present in urine.

TEST FOR URATES IN URINE

If, when standing, the urine deposits a pinkish curdy sediment, excess urates are present. The sediment can be dispersed by boiling the urine or by filtration. The sediment reappears on cooling.

TEST FOR GLUCOSE (SUGAR) IN URINE

Sugar is present in urine in the form of glucose (glycosuria), levulose (levulosuria), lactose (lactosuria), galactose (galactosuria) and pentose (pentosuria). Glucose (dextrose), however, is by far the most common. Traces of glucose are present in urine in health.

Benedict's Test :

(1) Place 5 ml. of Benedict's qualitative reagent in a test tube. Add 0.5 ml. (not more) of urine. Boil vigorously for 3 minutes; then allow it to cool. Do not hasten cooling by immersing the test tube in cold water.

(2) In the presence of glucose, the entire solution will be filled with a bulky precipitate, which may be greenish, greenish-yellow, or red in colour, depending on the amount of glucose present. In the presence of 0.25% of glucose, the precipitate will form quickly. If no glucose is present, the solution will remain perfectly clear or will show a faint turbidity due to precipitated urates.

TEST FOR BILIRUBIN IN URINE

Bile pigments give the urine a greenish-yellow or brown colour which, upon shaking, is imparted to the foam.

Smith's Iodine Test :

(1) Place clear urine in a test tube and clearly overlay with tincture of iodine, diluted with 9 volumes of ethyl alcohol.

(2) An emerald green ring at the zone of contact shows the presence of bilirubin.

Hay's Test for Bile Acids :

(1) Cool urine in a refrigerator by placing it there for several hours.

(2) Upon the surface, sprinkle a little finely-powdered sulphur.

(3) If sulphur sinks at once, bile acids are present to the amount of 0.01% or more. If sulphur sinks after gentle agitation, bile acids are present in 0.0025% or more. If sulphur remains floating even after gentle shaking, bile acids are absent. Chloroform and turpentine give false positive reactions.

TEST FOR CHLORIDES IN URINE

The following simple qualitative test will show the presence of chlorides, mainly in the form of sodium chloride :

(1) Place 5 ml. of albumin free urine in a test tube, and add 3 drops of nitric acid to prevent the precipitation of phosphates.

(2) Add 5 drops of 12% solution of silver nitrate in distilled water. Normally a white curdy precipitate of sodium chloride is formed. If the urine merely becomes milky or opalescent, chlorides are markedly diminished.

TEST FOR OCCULT-BLOOD IN URINE

Benzidine Test :

(1) Prepare a saturated solution of benzidine in glacial acetic acid *and keep it in safe place.*

(2) The usual solution of hydrogen peroxide is 3%. Test it before use by adding a few drops of strong sulphuric acid.

(3) Mix equal parts of benzidine solution and hydrogen peroxide.

(4) Place about 2 ml. of urine in a test tube and add 2 ml. of the mixed reagents. If sediment is used, mix with 2 ml. of water and use in the same manner as urine.

(5) A positive reaction is indicated by the development of a green to deep blue colour.

MICROSCOPIC EXAMINATION OF URINE

Precautions :

(1) As far as possible, specimens should be examined within 6 hours of voidance.

(2) A 24 hours' specimen should either have a preservative added or kept at low temperature.

(3) Alkaline specimens, cloudy with phosphates, may be slightly acidified with acetic acid to redissolve them.

(4) Specimens containing heavy centrifuged sediments of urates may be lightly warmed to redissolve them.

(5) Remove a drop of sediment by means of a pipette and place on a slide.

(6) The examination must be completed before drying takes place.

(7) The same amount of urine should be centrifugalised and the same thickness of drop should be examined.

Casts :

These have been classified according to their microscopic characteristics as hyaline, granular, epithelial, blood, pus, fatty and waxy. The finding of casts in the urine is important, for their presence indicates some kind of kidney disorder, especially if albumin is present.

Leucocytes and Pus :

A small number of leucocytes are present in normal urine. Any marked increase in their number is significant of disease somewhere along the urinary tract in both sexes. It is common practice to call them *leucocytes*, when they occur in normal urine and *pus cells*, when they are definitely increased. The nuclei are frequently indistinct or obscured by granules. The addition of a little dilute acetic acid brings the nuclei clearly into view.

Uric acid and Urates :

These do not appear normally in urine at the time of voidance. All acid urines upon standing, particularly when cold, will precipitate the uric acid normally present in solution, in the form of crystals or as amorphous urates. The urates produce cloudiness, and in highly concentrated specimens, may appear milky or have a pinkish colour. The former may be mistaken for pus and the latter for blood. A simple test is to warm the specimen where upon the urates will redissolve and the specimen will be cleared of the precipitate. The crystals may settle out and appear as gravel or red sand grains.

Bacteria :

Normal urine does not contain bacteria. However, urine is readily contaminated when passing through the urethra, and by vaginal secretions. Since urine is a very good culture medium for bacteria, multiplication takes place rapidly.

Bacteria, when in large numbers, cause cloudiness of the specimen which will not clear by filtration. In disease, pathogenic bacteria may be present, which require special cultural (Bacteriologic) examination for their detection.

ANALYSIS OF URINARY CALCULI (STONE)

(1) Urinary calculi or concretions are solid masses formed in the urinary tract from substances which are normally present in urine, or which may be present in excess due to faulty metabolism, or as the result of drug therapy (Sulphonamide compounds).

(2) **Phosphate stones.** They are nearly round with a rough surface. They vary in colour from chalk white to gray.

(3) **Carbonate stones.** They exhibit nearly the same colour and shape, but they are more round and harder.

(4) **Oxalate stones.** They have a variety of shapes and are more difficult to crush. The colour varies from grayish white to dark-brown. They are much more common than the carbonate, but not as common as the phosphate type.

(5) **Uric acid and urate stones.** These have a smooth rounded surface, but sometimes may have a nodular appearance and are always coloured yellow to brown and are often as common as oxalate stones.

(6) The stones which are rare are *Cystine Calculi* and *Xanthine Calculi*. There are some chemical tests also to verify each type of these stones, but these have not been mentioned here.

II—METHODS FOR THE EXAMINATION OF THE BLOOD

Precautions :

(1) The pipette should be cleaned immediately after use first with water and then with alcohol or methylated spirit. It should be dried by drawing air through.

(2) Similarly the ruled area of the surface of the slide and the cover glass of the counting chamber should be cleaned with water and dried with a soft cloth.

Collection of Blood :

(1) Usually blood is collected by pricking a finger. In the case of babies, the big toe or heel may be employed.

(2) In great majority of cases, however, the venous blood is drawn from one of the veins of the elbow (commonly the radial and ulnar veins).

(3) Oxalated blood may be used for biochemical tests.

NORMAL VALUES FOR HUMAN BEINGS

<i>Constituents</i>	<i>Normal</i>
Total erythrocytes (Red blood cells per cm. of blood)	Infants : 60,000 (at birth) Childhood levels : 4 to 5.5 million Adult males : 4.5 to 6 million Adult females : 4.2 to 5.6 million
Reticulocytes (Round circulating red blood cells)	0.5 to 1.5 per cent of erythrocytes
Haemoglobin—gross per 100 ml.	Infants : 60 Childhood : 44 to 35 Adult male : 41 to 52 Adult females : 38 to 46
Sedimentation Rate (E. S. R.) (1 hour)	Males : up to 8 mm. Females : up to 10 mm.
Total leucocytes (White blood cells) per c. mm. per 100 ml. of blood	Infants : 10,000 or higher Children ; 5,000 to 14,000 Adults : 5,000 to 10,000

(4) F. D. T. A. or sequestrene or heparinised blood should be used in all haematological tests.

() The skin should be cleansed, before incision of blood, with alcohol or methylated spirit.

HAEMOGLOBIN ESTIMATION

The haemoglobin is always shown in gm. per 100 ml. of blood. But it may be converted into percentage by multiplying it by 7 approximately, when $100 \equiv 14.5$ gm. For accurate estimation of haemoglobin contents, photo electrical method is the ideal one which eliminates the personal factor in matching. The method recommended is to use Hausser Haden-Haemoglobinometer (See Fig. II). Haemoglobin is converted into acid hematin and the colour compared with a permanent colour scale of tinted glass.

METHODS FOR COUNTING

(a) **Total Erythrocytes (Red blood cells).**

(b) **Total Leucocytes (White blood cells).**

(a) Only the principles of counting R.B.C. and W.B.C. are given here without going into full details :

Blood is diluted exactly 1 : 200 with a special pipette, using an isotonic fluid for the preservation of the corpuscles. The diluted blood is then placed in a special counting chamber and the cells in a measured volume are then counted. This figure is then multiplied by the appropriate factor to obtain the number of erythrocytes in 1 c. mm. of undiluted blood. This procedure constitutes the method used to report the results of erythrocyte count.

(b) The principles of the method of counting W. B. C. are as follows :

Blood is accurately diluted 1 : 20 with a fluid producing complete haemolysis of erythrocytes, without injuring the leucocytes. The corpuscles contained in 0.4 c. mm. of the diluted blood are then counted in a special chamber and this number is multiplied by 50 to obtain the number in 1 c. mm. of undiluted blood. This constitutes the usual method.

II—CHEMICAL METHODS OF BLOOD EXAMINATION

Collection of Blood for Examination :

Blood is usually taken from a vein at the elbow with a dry clean syringe (already described). After withdrawal of blood with a syringe and the needle, the latter should be removed and the blood should be expelled into a test tube by allowing it to flow down the side of the tube without spraying through air. A rubber stopper or a cap may then be inserted in the tube.

The following table shows the normal values and indicates the amount of blood serum or plasma required for the various determinations of blood constituents.

TABLE OF NORMAL VALUES

<i>Constituent</i>	<i>Normal value (mg. per 100 ml. for adults)</i>	<i>Amount and preparation of Blood</i>
Bilirubin	Adults : 9 to 11 Infants : 10 to 12	5 ml. plain
Cholestrol	Total : 150 to 250 Esters : 60 to 75% of total	5 ml. plain
Chloride	Serum : (575 to 630)	5 ml. plain
Glucose	80—110 85—120 (finger tip)	2 ml. oxalated 0.01 ml. (micro)
Iron	0.04 to 0.23 (lower in women)	5 ml. plain
Phosphorus (inorganic)	Adults : 3—4.5 Children : 4.5—6.0	5 ml. plain

(Contd.)

<i>Constituent</i>	<i>Normal value (mg. per 100 ml. for adults)</i>	<i>Amount and preparation of Blood</i>
Sodium	310—340	5 ml. plain
Potassium	16—22	5 ml. plain
Total—protein	6.0—7.5 gm. per 100 ml.	5 ml. plain
(A) Albumin	4.0—5.0 „ „ „ „	
(G) Globulin	2.0—2.5 „ „ „ „	
A. G. ratio	1.5—2.5 „ „ „ „	
Uric acid	2—4	5 ml. plain

DETERMINATION OF GLUCOSE OR BLOOD SUGAR

The principle is that when protein-free blood filtrate is heated with an alkaline copper solution, the glucose produces a precipitate of cuprous oxide, which is dissolved by and reduces a phospho-molybdic acid solution. The resulting blue colour is compared calorimetrically with one prepared from a standard glucose solution.

DETERMINATION OF UREA

The aeration urease method of Van Slyke and Cullen for the determination of urea in urine may be used for blood by making allowance for the smaller amounts of urea present. It may be convenient to use this method for blood in the urea clearance test, if the requisite apparatus is available in the laboratory. (See chapter V under kidney function tests.)

DETERMINATION OF BILIRUBIN

(Direct Van Den Berge Test)

This method is based on the observation that bilirubinate reacts with the diazonium bodies of Ehrlich's diazo reagents in an aqueous medium with alcohol to form a reddish dye azobilirubin.

DETERMINATION OF CHOLESTEROL

The cholesterol is extracted by an alcohol-ether mixture, and cholesterol is determined calorimetrically in the filtrate before and after precipitation by digitonin.

DETERMINATION OF ALBUMIN AND GLOBULIN

The globulin is precipitated from the serum, and the albumin is determined in the filtrate. The globulin is determined by difference. Determine the total protein of the serum by *Micro-kjei-dahl method*.

III—BACTERIOLOGIC METHODS

Precautions in Collection and handling :

- (1) Obtain the material directly as free from contamination as possible.
- (2) Make smears that are neither too thin nor too thick.
- (3) Specify the source of material and the kind of examination to be made.
- (4) Use cotton-tipped swabs whenever possible.
- (5) Use extreme care to avoid contamination of the swab or container after collection.
- (6) Deliver specimens to the laboratory as promptly as possible.

Blood Culture :

- (1) Blood culture is necessary for the detection of bacteria in the blood.
- (2) Choose the [proper culture medium and method of incubation. *Aerobic methods* are generally employed. But strictly, *anaerobic methods* should be employed either alone or in conjunction with aerobic methods.
- (3) Para-aminobenzoic acid (PABA) should be incorporated in all blood cultures media in a final concentration of 5 mg. per 100 ml. for the neutralisation of the sulphonamides. If this is not done, the bacteria may escape detection.
- (4) Blood may be cultured by adding it directly to a flask of fluid culture medium at the time of collection. A better method, however, is one which utilises a small bottle with a preferably small stopper containing anticoagulant and partial vacuum.

(5) Several investigations have reported that cultures of blood removed from femoral artery have shown the higher incidence of positive results than duplicate cultures of venous blood.

Anaerobic Blood Cultures :

A deep column of culture broth in an Erlenmeyer flask furnishes adequate anaerobiosis (oxygen) for micro-aerophilic organisms providing the medium a tissue infusion base, such as, brainheart. The addition of 0.2 percent agar (a gelatinous substance used in bacterial culture media) further reduces the oxygen tension and is recommended as a routine measure.

EXAMINATION OF SPUTUM AND EXUDATES

Obtained by Bronchoscopic Aspiration

Sputum specimens should be collected as :

- (a) fresh specimens for routine bacteriologic examinations and
- (b) 24-hours' specimens for tubercle bacilli.

Methods :

(1) Examine the specimen for foul odour. If present, a darkfield examination for spirochaetes is indicated. To be of value, this examination should be carried out within 30 minutes of the collection.

(2) A Gram-stained direct smear may be made to indicate the predominating types of micro-organisms present.

(3) Inoculate : (a) Aerobic (unable to live without oxygen) and anaerobic (opp. of aerobic) blood agar plates. (b) A Sabourauds agarplate for room temperature incubation.

(4) Place antibiotic discs on the blood agar plates.

(5) The sputum should be poured into a sterile plate and placed on a dark surface beneath a good light source. With two wooden swab sticks, search for and select brownish, muco-purulent material. Collect 1 to 2 ml. in a sterile test tube of 15 to 25 ml. capacity. The smear is prepared from this material, and fungi, if present, will be apparent as blue elements.

(6) Add 2 to 4 ml. of N/1 (4 per cent) NaOH to the selected sputum and place it at 37°C for 30 minutes. Centrifuge (a rotating

apparatus) at 3000 r. p. m. for 15 minutes. Pour off supernate (upper layer) into 20% formalin solution.

(7) Examine the blood plates at 24 hours and identify the micro-organisms (as Gram positive and Gram negative) which are frequently recovered in sputum and bronchial secretions.

EXAMINATION OF CEREBROSPINAL FLUID (C. S. F.)

(1) Cerebrospinal fluid should be collected under rigid aseptic conditions to prevent accidental contamination and examined as soon as possible, otherwise the organism (*Meningococcus*) may not survive.

(2) If C. S. F. is turbid, prepare a direct Gram-stained smear and examine at once for bacteria and note the type of cells present.

(3) If it is clear and no bacteria is found, centrifuge at 2500 to 3000 r. p. m. for ten minutes. Pour off the supernate into a sterile tube and hold for chemical or further bacteriologic examination.

(4) Prepare a Gram-stained smear and also a (Ziehl) Neelson smear, if the fluid is clear or contains lymphocytes or tuberculosis is suspected. Control the Gram-stained smear with known Gram-negative organisms; if Gram-positive cocci are observed, rapid identifications for pneumococci should be attempted.

(5) Inoculate 2 to 4 loopfuls of C.S.F. or sediment to :

(a) Aerobic blood agar.

(b) Blood agar to be incubated in 10% CO₂.

(c) Anaerobic blood agar.

With a sterile pipette, transfer the residue to a flask of blood culture medium and incubate in 10% CO₂.

(6) Place antibiotic discs on the blood agar plates and "*Staphylococci*" may be "spotted" to promote growth of *H. Influenzae*, if necessary.

(7) When indicated, inoculate 0.1 to 0.2 ml. to each of 2 tubes of Petragnani's medium and 2 tubes of Lowenstein's medium for Myco-tuberculosis.

EXAMINATION OF PLEURAL AND PERICARDIAL EXUDATES AND TRANSUDATES

Methods :

(1) Centrifuge, if necessary, and prepare smears of the sediment. Stain by method of Ziehl-Neelson and examine very carefully for acid-fast tubercle bacilli.

(2) Inoculate heavily or lightly, depending upon the direct smear findings :

(a) Aerobic blood agar.

(b) Anaerobic blood agar, if the specimen is transudate.

(c) Thio-glycollate medium.

(d) Two tubes of Petragnani's and Lowenstein's medium.

(3) Place the antibiotic discs on the blood plates.

(4) After 24 hours' incubation, examine blood agar cultures and identify the micro-organisms.

(5) Examine cultures for tubercle bacilli.

IDENTIFICATION OF DIPHTHERIA

Throat swab is necessary for the diagnosis of *Diphtheria*. A sterile swab of non-absorbent cotton in a sterile test tube is obtained from the laboratory. Depress the tongue well and then take a smear of pharynx and tonsils on the swab (or try to scrape off the patch, if it can be seen) quickly. Put it back in the test tube, plug it and send it to the laboratory as soon as possible for culture. Another swab, taken in the same manner, is smeared on a clear slide, stained with Albert's stain and examined on the microscope for the organism.

IDENTIFICATION OF VIBRIO CHOLERAЕ

(1) The rice water stools are characteristic of this infection. Do not add glycerine as a preservative. The faeces of suspected carriers may be used or swabbings may be taken from the rectum.

(2) Prepare smears from shreds of mucous ; stain by the method of Gram and with dilute carbolfuchsin. If a large number of typical gram-negative, comma-shaped organisms are present, examine a hanging drop preparation. If typical activity motile vibrios are present, a tentative diagnosis may be made.

(3) Vibrios, being curved rods with rounded ends, resemble comma. They occur singly, in pairs, in short chains or spirals. In old cultures, they may be small and granular and stain poorly. Involution forms are frequent. Full details of the method have not been given for want of space.

VIRUSES

Viruses are similar to many bacteria in one important respect viz., that they are good antigens, and in nearly all infections, specific antibodies are produced in detectable amounts. There are several methods available for the detection of viral antibodies, but from the point of diagnostic laboratory, the most important is the *Complement Fixation Test*.

IV—PARASITOLOGIC METHODS

(1) MALARIA

Of Blood :

(1) The final proof of malaria always depends upon finding the plasmodia or their pigments in the blood. Otherwise the diagnosis is open to question.

(2) The parasites are most numerous during paroxysms, though they may be found at other times also.

(3) Laboratory diagnosis consists of the examination of :

(a) thin-stained smears of blood,

(b) thick-stained smears of blood,

(c) stained smears of blood after concentration,

(d) stained smears of material secured by sternal or organ puncture in chronic malaria,

(e) cultures of the blood. Thin and thick blood smears are usually sufficient. The *Complement Fixation Test* for protozoal infections is the common method of identifying the malarial parasite.

(2) MICRO-FILARIAE

(1) In infestments due to *W. bancrofti* and *W. Malayi* laboratory diagnosis is based on finding the micro-filariae in the blood during the night, and especially between 10 p. m. and 2 a. m. In the case of infestments by other organisms, the micro-filariae occurring in the blood are non-periodic.

(2) Thin stained films and thick stained films or fresh wet films may be used for the examination of blood.

(3) Concentration methods, however, are frequently required. A simple method consists of collecting 1 ml. of blood from a finger or ear in 5 ml. of a 2% solution of glacial acetic acid mixing thoroughly and centrifuging. Wet and Giemsa stained smears of the sediment are examined for micro-filaria. The *Complement Fixation Test* is commonly applied to detect the micro-organisms.

EXAMINATION OF WORMS, OVA, LARVAE OR CYSTS

Of Faeces :

In the routine examination of faeces for animal parasites the following order should be adhered to :

(1) **Gross examination.** The consistency, fluid, formed or semi-formed, odour, colour of the stool should be noted together with the presence of blood and mucous and the presence of adult helminths or their segments.

(2) **Microscopic examination.** For direct examination in saline for the presence of other parasitic forms, ova, larvae and cysts, it is necessary that at least three specimens should be examined to achieve an accuracy of over 90%. In the routine examination of faeces for ova, and larvae, the procedure adopted should be :

(a) Direct smears of the faeces.

(b) Examination by concentration method.

(c) Examination by culture (when applicable). The stools should be collected in a clean, dry receptacle and should not be mixed with urine.

(3) Pinworm infestation is best diagnosed by material collected from the perianal or perineal skin.

(4) The most useful procedure for the demonstration of *protozoan cysts* and *helminthic ova* is the *zinc centrifugal floatation method*.

V—SEROLOGIC METHODS

Bacterial Agglutination Methods

Bacterial agglutination tests are of proved value.

In the identification of the types of streptococci of group A, salmonella, meningococci, shigella and H. Pertussis. They are also useful in the serum diagnosis of many diseases with special reference to typhoid and paratyphoid fevers, brucellosis, leptospirosis, typhus fever and rickettsial diseases. They are likewise helpful in the diagnosis of pertussis, bacillary dysentery and bubonic plague.

As a general rule agglutination tests are of most value in diagnosis when serial examinations are made every 3 to 5 days after the onset of illness for the detection of progressive increase of agglutinins.

The microscopic test known as 'widal' or 'agglutination' test may be employed for the diagnosis of typhoid and paratyphoid fever, but has been largely replaced by the microscopic tube agglutination test employing formalinised and alcoholic antigens. Since living cultures are employed, due care must be exercised and the slides and cover glasses placed in a disinfectant solution or boiled for 5 mts. before handling and cleaning. The technique cannot be given here for want of space.

WASSERMANN COMPLEMENT FIXATION TEST FOR SYPHILIS

General Technique :

Five to ten ml. of blood is taken out with full aseptic precautions and sent to the laboratory. If the sample is to be sent by post, the blood is allowed to coagulate. The separated serum from haemoglobin is taken out with a sterile hypodermic syringe and 2 1 ml. ampoules are filled up, sealed on the flame and despatched.

This complement fixation test, when positive, is a fairly reliable test for syphilis. It is positive :

(a) During the primary stage 15 days after the appearance of the primary sore in 60 to 80% of cases.

(b) During the secondary stage practically always and in the tertiary stage according to the severity of the residual infection in 60 to 80% of cases. C.S.F. is helpful in neurosyphilis.

KAHN'S FLOCCULATION TEST FOR SYPHILIS

Kahn's flocculation test is the most sensitive test for syphilis. The procedure is too elaborate to be described in detail here.

ALLERGIC CUTANEOUS TESTS

(1) The cutaneous or scratch tests have the advantage of simplicity and inexpensiveness, since 30 or more can be conducted at one time. They are also safe. One disadvantage may be lack of sufficient sensitivity.

(2) Intracutaneous tests have a great advantage in detecting one's hypersensitiveness to foods, bacteria, serum, fungi and animal parasites. The skin of the outer aspect of the arm has been found more satisfactory and convenient for this type of testing than any other part of the body. Some of these tests are described below :

Dick's Test :

This is done to test the susceptibility of skin to scarlet fever. The reaction appears in 12, 24 and 48 hours. It consists of the intracutaneous injection of 0.1 ml. of Dick toxin, carrying one skin test dose. The slightest erythema constitutes a positive reaction, if it measures as much as 10 mm. in any direction.

Schick's Test :

By this test children susceptible to diphtheria are spotted out. The usual method is to inject 0.1 ml. of the diluted toxin in the cleansed skin of the inner surface of the forearm below the elbow or the upper arm near the site of insertion of the deltoid muscle.

In the case of children and adults, a similar injection of 0.1 ml. of the control fluid should be made in the opposite arm. The presence of a large white palpable wheal indicates that the injection has been properly made.

SCHULTZ-CHARLTON BLANCHING TEST

This test is also done to test the susceptibility of scarlet fever. It is of clinical value in differential diagnosis of scarlet fever rashes from similar rashes occurring in rubella and the drug allergies (quinine or salicylates).

It consists of an intra cutaneous injection of 0.5 ml. of convalescent scarlet fever serum or 0.1 ml. of a potent scarlet fever antitoxin in the centre of a large area, where the rash is biggest, preferably on the abdomen or chest. The reaction is observed 18 to 24 hours later. The positive reaction consists of blanching in a zone, surrounding the central red spot where the injection was made. The rashes due to drug allergy are not blanched. The same is true in rubella (German measles).

ALLERGIC SKIN TEST FOR TUBERCULOSIS

The cutaneous or scratch test of *Von Pirquet*, employing old tuberculine is highly specific, but less sensitive than the intracutaneous test of *Mantoux*. Therefore the latter is preferred and may be conducted with old tuberculine (O.T.) or the purified protein derivative (P.P.D) of *Seibert*. If old tuberculine is employed, 0.1 ml. of a 1 : 10000 dilution (0.01 mg.) is injected intradermally, but if a negative reaction is observed, a second injection of 0.01 ml. of 1 : 100 dilution (1 mg.) should be made.

Observe after 24 to 48 hours. Negative reaction shows no oedema, while positive reactions are characterised by oedema.

INDIRECT TESTS FOR DETECTING ALLERGY

The indirect tests are based upon the demonstration of allergic antibodies (allergens) in the blood of the patient. In these cases cutaneous tests are impossible. Examples of patients suffering from eczemas and asthmas, who are too feeble to take skin tests, may be cited.

The tests depend upon the possibility of sensitising a local area of a normal individual by the intracutaneous injection of the serum of an allergic individual containing skin sensitising antibodies or allergens. This test cannot be done if the allergic individual is syphilitic.

Remove 5 ml. of blood with usual precautions. Separate the serum and centrifuge, if necessary, to remove corpuscles. It may be preserved by the addition of 0.1 of 5 per cent phenol per ml. It is advisable to culture sterility. Inject this serum intracutaneously into the forearm of an individual who is normal and non-allergic. Eight such injections may be made. If foods are being tested, the recipient should abstain from them for 45 hours especially in the case of eggs, fish or nuts. Ring each site of the skin with ink. Allow 24 or preferably 48 hours to elapse and reinject sensitised sites with 20.0 ml. of solutions of the allergens being tested. At the same time inject a similar amount of each into adjacent areas of non-sensitized skin as controls. After 10 mts. inspect each area. A reaction in a sensitized area with no reaction in the control site is positive. If both are negative, it is likely that the serum had no antibodies for the allergens employed. If both are positive, the recipient has an allergy to the allergen, and the test would have to be repeated with another individual.

APPENDIX I

(To Chapter IV, page 443)

NERVOUS DYSPEPSIA

Definition and Etiology :

This is a type of digestive disorder, which is influenced by emotional factors, such as, anger, frustration, guilt, or resentment, and accompanied with neurosis, affected by anxiety and depression. This type of disorder depends upon the nature and psychological factors at work, and patient's mental and physical make-up.

Symptoms and Signs :

(1) Sometimes, the patient is ill, and sometimes comparatively better without obvious reasons. There is a vague abdominal discomfort, not amounting to pain, worse in the morning and better in the evening.

(2) Fatigue, worry and excitement aggravate the symptoms.

(3) Nausea and vomiting may occur.

(4) Flatulence due to aerophagy may be felt.

(5) Frequent noisy belching is common.

(6) Appetite is diminished.

(7) Constipation is generally present.

(8) The abdominal muscles may be either tense or weak.

(9) Gastric symptoms are associated with nervous symptoms, such as, headache and insomnia.

(10) Loss of appetite may lead to loss of weight and strength.

(11) There may be flushing of face at the time of discomfort along with coldness of extremities.

(12) The patient is depressed and pessimistic.

Treatment :

(See also Intestinal Dyspepsia).

General : Regular habits are essential for cure. Often a sea-voyage is beneficial.

Curative :

(1) **Anacardium**. The patient is hypochondriac and has loss of memory. He has an emotional desire to eat, because it relieves his hunger pains, which return after 2 hours or so. He has an urging to stool, but the desire passes away with the effort.

(2) **Argentum Nitricum**. It has gastralgia, especially in nervous and delicate women, caused by an emotion, loss of sleep or menstruation. There is a feeling of a lump in the stomach.

(3) **Ignatia**. It is the principal remedy for gastralgia which comes on at night or after eating, worse from motion or pressure, excessive flatulence, especially in hysterical subjects.

(4) **Kali Phos**. For nervous dyspepsia with great nervous depression. The patient is weak and exhausted. There is a weak feeling in the stomach. Hunger returns immediately after eating.

(5) **Phosphorus**. When there is excessive flatulence with frequent palpitation and intermittent pulse, accompanied with much despondency. The patient is hungry at night and remains awake, until he gets something to eat.

(6) **Nux Mosch**. The abdomen is excessively bloated ; there may be hicough and craving for highly seasoned food. Gastralgia occurs half an hour or so after meals. Nux. Vomica has a pain immediately after eating.

(7) **Chamomilla**. It has pressive gastralgia in nervous persons, as of a stone. The patient sweats after eating or drinking. Eructations are foul. There may be bilious vomiting.

INTESTINAL CARBOHYDRATE DYSPEPSIA

Definition : A condition which results from the presence of excessive gas in the colon, due to the fermentation of carbohydrates, which have escaped digestion in the small intestine.

This is a condition which results from the presence of excessive gas in the colon, due to the fermentation of carbohydrates, which have escaped digestion in the small intestine.

Pathology and Etiology :

When food is properly chewed, starch is partly digested by the ptyalin of the saliva, and amylopsin of pancreatic juice. It is completely digested in the upper part of the small intestine. When the rate of its passage through the small intestine is excessive, the starch in some cells reaches the caecum and the ileum, unaltered. Amylopsin, here, tries to penetrate the cells, and the sugar thus formed is attacked by bacteria, which are present in large numbers and undergo fermentation before there is time for adequate absorption of sugar into blood. The symptoms of intestinal carbohydrate dyspepsia are caused by the production of carbon dioxide and acetic acid on account of this fermentation.

In some cases, there is some kind of food-poisoning, or intestinal infection, which causes enteritis. In other cases, the repressed emotional factor may be responsible for the intestinal disturbance.

Symptoms :

(1) Heaviness and epigastric pain.

(2) Nausea and vomiting.

(3) Loss of appetite.

(4) Morbid appetite.

(5) Acidity and pyrosis.

(6) Flatulence and belching.

(7) Mentally morose, irritable and depressed, and physically tired and exhausted.

(8) Want of sleep which is full of dreams.

Signs :

(1) Face relaxed and sad, sunken dull eyes, pale or yellowish lips.

(2) Hands and feet generally cold with sensitiveness to cold.

(3) Gradual emaciation and wasting away of muscles.

Treatment (Dyspepsia) :

General : (1) Regularisation of diet and living habits are essential.

- (2) Proper chewing of food.
- (3) The diet must be nutritious and digestible.
- (4) Too much fat and spices in diet should be avoided.

Curative :

(1) **Abies Nigra.** Chronic dyspepsia with pain immediately after eating. The patient is low-spirited and despondent. There is hard-boiled-egg sensation in the stomach.

(2) **Anacardium.** Nervous dyspepsia with a constant desire to eat, as it relieves the hunger-pain, but which soon returns after a couple of hours. Constipation with constant urging to stool, but the desire passes off on going to stool. Loss of memory and hypochondriasis.

(3) **Antimonium Crud.** Atonic gastric catarrh with thickly-coated tongue as a result of overloading the stomach, resulting in eructations, tasting of food and vomiting.

(4) **Argentum Nitricum.** Nervous dyspepsia with violent, loud and enormous belching that provides relief: gnawing pain in the pit of stomach radiating in all directions, the food making the pain, which is caused by emotion, sleeplessness or menses; feeling of a lump in the stomach; vomiting of glairy mucous; longing for sweets, but this produces diarrhoea; everything that the patient eats seems to turn into gas; suitable for patients with gastric ulcer (in higher potency).

(5) **Arnica.** Atonic dyspepsia with fulness and painful contractions after eating, or when the disorder has been caused by a blow on the stomach.

(6) **Arsenicum.** Dyspepsia caused by vinegar, acids, ice-cream, ice-water and tobacco; ill-effects of watery fruits and vegetable diet; the pains are of a burning character attended with nausea and vomiting; the stomach is sore and sensitive, and the patient prostrated. It suits a dyspepsia in which there is inflammation of the membrane (Gastritis).

(7) **Bismuth.** Atonic and acid dyspepsia with symptoms of burning and lancinating pains with spasmodic vomiting of fluids, as

soon as they strike the walls of the stomach. It suits cases of pure gastralgia.

(8) **Bryonia.** Atonic and acid dyspepsia of irritable persons who mostly suffer attacks in summer ; pressure after eating, as of a stone, the sensation disappearing with eructations, which are putrid or sour after a meal ; nausea and faintness on rising, followed by vomiting soon after ; thirst for large quantities of water with dryness of lips and tongue, which is coated white or gray ; constipation with large, hard and dry stools, as if burnt.

(9) **Capsicum.** Atonic dyspepsia with relaxed mucous membrane, much flatulence and cold stomach.

(10) **Carbo Veg.** Atonic dyspepsia with slow digestion in which food putrifies in the stomach before it is digested (putrid variety), a faint gone-feeling in the stomach, not relieved by eating ; few mouthfuls fill the stomach ; burning in the stomach extending to back and spine, excessive flatulence, more in the stomach than in the bowels, relieved by belching, which is rancid, sour or putrid ; coffee and milk disagree. The patient is worse by eating fish, ice-cream, vinegar and cabbage.

(11) **Causticum.** Acid dyspepsia with a sensation of ball rising in the throat, greasy taste ; aversion to sweets, worse after eating meat : feels, as if lime was burning in the stomach.

(12) **China Off.** Useful after loss of vital fluids with a slow, weak digestion, weakness, and prostration with a desire to lie down after meals. Distention is painful and is relieved temporarily by belching. Abnormal hunger, but a few mouthfuls satisfy. The food lies in the stomach for a long time and causes bitter and sour eructations and offensive wind. The food may be vomited, as it remains undigested.

(13) **Colchicum.** It has nausea even at the mere thought of food. Pain in stomach and flatulence, thirst and vomiting.

(14) **Graphitis.** There is no distention either of stomach or abdomen, burning cramps in the epigastrium and putrid eructations. It has aversion to meat, chilliness, burning, crampy and cold

pains, relieved by eating. Sweets nauseate; hot drinks disagree and there is rush of blood to the head after eating. This remedy, if alternated with *Nux Vom.* is likely to cure all kinds of dyspepsia. *Nux* one hour before meals and *Graphitis* one hour after meals should be given in the 12th potency.

(15) **Hepar Sulph.** Atonic dyspepsia with a longing for the sour food and condiments, frequent but momentary attacks of nausea, attended with a flow of saliva in the mouth. The plainest food disagrees with the patient.

(16) **Hydrastis.** Atonic dyspepsia with loss of appetite, dull epigastric aching, worse after eating, clean tongue at sides and tip, but a yellow coating down the centre, depression of spirits, obstinate constipation with stool covered with mucous, liver involved, sour eructations.

(17) **Ignatia.** Nervous dyspepsia, chiefly in hysterical subjects with sour eructations, nausea, vomiting (hunger and vomiting may exist at the same time). The pain comes in stomach after eating or at night, worse from pressure or motion, excessive flatulence.

(18) **Ipecac.** Atonic dyspepsia, weak stomach with loathing of food, of tobacco, easy or violent vomiting containing mucous, especially when accompanied by diarrhoea. The tongue is not coated.

(19) **Kali Bich.** Dyspepsia of beer drinkers is often indicated by the sensation, as if digestion had stopped after a meal had been eaten with relish, and the food lies in the stomach like a load. There is nausea and vomiting after beer. The stomach is dilated. Tongue has a thick yellow coating.

(20) **Kali Carb.** Atonic and acid dyspepsia of persons whose system is broken down by loss of fluids or protracted illness with acidity (sour eructations), heartburn and bloating. Before eating, there is a sinking feeling in pit of stomach out of proportion to the hunger and a peculiar nervous sensation. The patient is sleepy while eating. After eating there is undue flatulence and a feeling that the stomach is full of water. Belching is putrid, but gives relief. All the stomach symptoms are aggravated by soup or coffee. Desire for sugar and sweets is there.

(21) **Kali Phos.** Nervous dyspepsia with great nervous depression, weakness and exhaustion. There is hunger immediately after eating.

(22) **Lycopodium.** Atonic and acid forms of dyspepsia with distress in stomach immediately upon eating a few morsels. The digestion is slow and difficult, and the patient is unconquerably sleepy after eating. There is accumulation of flatus more in the intestine than in stomach with pressure upwards, causing difficulty in breathing. There are sour eructations, which do not relieve; also constipation, with ineffectual urging to stool, from contraction of sphincter. Urine loaded with urates and desire for sweets.

(23) **Nux Moschata.** The abdominal disturbances commence immediately after eating. The abdomen is excessively bloated and is attended with hiccough with a craving for highly-seasoned food.

(24) **Nux Vom.** Dyspepsia caused by mental overwork, sedentary habits, high living and dissipation; frontal headache is almost constant; gastric troubles begin half an hour or so after meals. Often there is nausea, some sour or bilious vomiting, water-brash, sour, bitter, metallic or putrid taste and vertigo with morning and after dinner aggravation. The eructations are painful, bitter, or sour, abnormal thirst, sensation of a lump or load in stomach after eating.

(25) **Nat Mur.** Suitable for chronic cases of atonic dyspepsia in hypochondriacal patients with great hunger, but no appetite, pressure and distention of stomach, heartburn after eating great longing for salt, aversion to bread and vomiting of clear mucous.

(26) **Phosphorus.** Atonic and acid forms of dyspepsia with a weak, gone-feeling in the stomach at 11 a.m. which extends to the bowels and characteristic burning between the scapulae. The tongue is white, more along the middle. The patient is hungry at night and remains awake till he eats. The patient vomits as soon as the food touches the stomach, and there is much pain and burning which is relieved by drinking cold water that is vomited out as soon as it becomes warm in the stomach.

(27) **Pulsatilla.** Atonic and acid forms of dyspepsia with acidity, heartburn more than waterbrash, and taste bitter, sour or

putrid, eructations, tasting of food, and absence of thirst, but a desire to moisten the mouth. Distention or weight in stomach an hour or two after meals, which is relieved by eating is present. The wind moves about and often gives pain near about the chest, which is relieved by eructations or by passing flatus. It is especially useful for dyspepsia arising from fatty foods or by chilling the stomach with ice-cream or ice-water. The patient is always chilly and worse from heat and better in the open air.

(28) **Robinia.** Acid forms of dyspepsia with hyperacidity and sour vomiting. There is burning in epigastrium with frontal headache, when stomach is empty. Frequent acid eructations and colic, which make the patient double-up, are prominent symptoms.

(29) **Sepia.** Chronic cases having anger, vehemence, irritability, indifference, sadness and a weeping disposition. It has the symptoms of hot hands and cold feet and a likely yellow saddle across the nose. There is white-coated tongue and a putrid and sour taste in the mouth. The most important symptom is a feeling of goneness in the stomach, not relieved by eating, with nausea at the smell or sight of food. The abdomen is flatulent and the liver is sore with sharp pains which are relieved by lying on the right side. The sepia patient longs for acids and pickles and is worse in the forenoon and evening. This is suitable for the ill-effects of tobacco.

(30) **Sulphur.** Chronic cases that have a tendency to relapse with the following symptoms : bitter and sour taste, putrid eructations, sour vomiting, congested liver, constipation, dyspepsia of drunkards, aggravated by starchy foods, desire for sweets which make the patient sick, causing a sore stomach and heartburn, appetite at night, hot flushes, hot head and cold feet, early morning diarrhoea, cat-nap sleep.

(31) **Sulphuric Acid.** Acid dyspepsia, sour eructations and vomiting, heartburn, sets teeth on edge like robinia ; relaxed feeling in stomach.

APPENDIX II

(To Chapter X)

ENCEPHALITIS LETHARGICA

Definition :

Encephalitis is an acute febrile disease, occurring singly and epidemically, possibly due to the infection of the nervous system by an unidentified virus. The disease principally affects the upper parts of the nervous system, the cerebrum, basal ganglia, and the brain-stem.

Etiology :

The disease generally manifests itself in the patients who are convalescing from infectious diseases, caused by viruses, or in those who are being vaccinated against virus maladies, such as, small-pox or rabies, or in those who are suffering from pyogenic diseases, infective fevers, or meningitis. The causative agent is believed to be a filtrable virus, the affection spreading by droplet infection from naso-pharynx to the arachnoid sac and so to the brain. No age is exempt from the malady.

Symptoms and Signs :

The acute stage. This is marked by drowsiness, headache, constipation, pains in limbs, coryza and mild fever. Lethargy sets in soon after, and the patient lies in bed intensely drowsy and heedless of his surroundings. The lethargy is profound in the day time. The patient has to be roused from sleep to take food and then he sleeps over again. At night, the drowsiness gives place to muttering delirium and hallucinations. This is followed by ocular disturbances and facial paralysis. The pupils may be strongly contracted or dilated : ptosis is common due to sleepiness, and so is photophobia and diplopia, etc. As the sensory tracts remain unaffected, there

is no paralysis of the limbs. Occasionally, there may be hemiplegia. The cerebro-spinal fluid is generally clear and without clots. Symptoms common to all forms of encephalitis are : **sleepiness, coma, irritability, delirium, convulsions and vomiting.**

Diagnosis :

In typical cases, there should be no difficulty in settling the diagnosis. These cases are characterised by rousable lethargy, incontinence, paralysis of the eye muscles, and blood-containing cerebrospinal fluid. But in less common forms of the malady, the neurologists have encountered some difficulty. As there is no specific laboratory test, the diagnosis must be based upon clinical grounds. Some cases commence with pains, excitement, mania or convulsions and are followed by ptosis, paralysis of the eye muscles, and these ultimately settle the diagnosis. In the early stage, the disease is, of course, unrecognisable and hence one has to wait for the end-results, *e.g.* spontaneous movements and the paralysis of the eye muscles.

Treatment :

Curative :

(1) **Baryta Carb.** Suitable for the sclerotic or degenerating changes of the brain with excessive irritation of the nervous system.

(2) **Atoxyl.** (Sodium Arsenate 3x) : For optic atrophy.

(3) **Arsenicum.** When degenerative changes in the brain or any other organ begin.

(4) **Hyoscyamus.** Cerebral inflammation with pulsating waves through the head, relieved by shaking it or sitting with the head bent forward (opposite of *Belladonna*).

(5) **Helleborus.** Sleepy sickness with lethargy is the dominating symptom.

(6) **Stramonium.** Inflammatory conditions of the brain with violent delirium or epileptic seizures. Vertigo is the prominent symptom, and also temporary blindness.

(7) **Baptisia.** When typhoid conditions are present. (See also *Meningitis*).

HEREDITARY AND FAMILIAL CEREBELLAR DISEASES

Delayed Cerebellar Atrophy

Definition :

The etiology of primary atrophies of the cerebellum is unknown, but the cause is probably endogenous. Some forms appear early in infancy ; while others show themselves later in life and hence are called 'delayed'. The infantile forms are extremely rare. Of the delayed varieties, the most common is an atrophy of the cerebellar **Marie's delayed cortical cerebellar atrophy**.

Etiology :

The disease affects both sexes, and shows itself at any age from 45 onwards. The lesion is bilaterally symmetrical and is most marked on the upper anterior parts of the cerebellum. It is essentially a cortical atrophy, with disappearance of the **Purkinje cells** as its characteristic feature. Familial incidence has been described, as a cause.

Symptoms :

The clinical picture is that of a slowly developing, ataxia of gait, accompanied by a disorder of articulation ; ataxia of arms develops later, but nystagmus rarely occurs. In many cases the tendon-jerks are increased, indicating an element of spinal degeneration.

Diagnosis :

It is natural that the disease may be mistaken for **disseminated sclerosis**. The later age—incidence, the absence of nystagmus, of disc changes, of spasticity and of loss of sense of position and the steady progress should make the diagnosis of disseminated sclerosis untenable ; while the reeling character of the ataxia and the sibilant instead of staccato quality (halting) in the articulation disclose the real nature of the disease.

FRIEDREICH'S ATAXIA

Definition :

This is an hereditary disease, characterised clinically by a progressive ataxia, and pathologically by the degeneration in the

spinal cord of the posterior columns, lateral columns, and spino-cerebellar tracts and in the cerebellum of the number of Purkinje cells.

Etiology

The disease is transmitted through both males and females of a family. Indirect heredity is the most common cause, because the subjects are affected in childhood and are incapacitated by the time they attain adulthood, but direct heredity also does occur. The first signs occur usually before the sixth year, but in many cases the onset is delayed until puberty, while in a few, it may not be until after the age of 30. The disease is said to be slightly more common in males.

Symptoms and Signs :

(1) The onset is always insidious.

(2) Physical signs of abnormality usually precede any complaint on the part of the patient. The first symptoms are generally felt between the 6th and the 10th year of childhood ; the signs of the extensor response in the planter reflex, the retraction of the great toe and some degree of pes cavus may often be found before the 6th year. Ataxia is always the first sign to appear and this is shown by an awkwardness of gait and a tendency to stumble and fall readily.

(3) In standing, the body oscillates from side to side in slow and clumsy fashion, and coarse tremors of the head and trunk are constant features in advanced cases. The ataxia invades the arms, as a rule, later than the legs. Nystagmus is usual. Dysarthria (stammering) is almost constant and is gradually progressive.

(4) Moderate, wasting of the small muscles of feet and hands is seen.

(5) Sensibility to touch, pain and temperature are slightly affected.

(6) Optic atrophy is a rare phenomenon.

(7) Some patients are of poor mentality from the start ; while others show a tendency to severe mental degeneration in the later stages of the disease.

(8) Emotional instability and outbursts of temper may occur.

(9) In some cases knee-jerks may be present.

(10) Spinal curvature is very common and may persist and reach an advanced stage of the disease.

Diagnosis :

In uncomplicated cases, the diagnosis is a matter of no great difficulty on account of the distinct nature of the symptoms. Friedreich's ataxia can nearly be mistaken for tabes, since the history of heredity, the peculiar deformity of the feet and spine, the extensor plantar reflex, the speech affection and the nature of ataxia contrast strongly with the loss of pain, deep sensibility, the pupillary changes, the sphincter trouble, the abnormal wasserman reaction and the abnormality of cerebral spinal fluid in tabes. The distinction from disseminated sclerosis presents more difficulty ; but in this disease the onset never occurs in childhood ; there is no heredity ; the deep reflexes are never lost and the spinal deformity does not occur.

Prognosis :

The average duration of the disease is about 30 years, and in some cases, there is no tendency to shorten life. Confinement to bed from any cause has a bad influence upon the ataxia.

Treatment :

See "Tabes Dorsalis".

RABIES

(Synonyms, Hydrophobia, Lyssa)

Definition :

This infective disease is due to a filtrable virus which is located in the salivary glands and central nervous system. It is transmitted to man and most warm-blooded animals through infective saliva of canines or blood-lapping bats. There is a long and variable incubation period, and a short pyrexial illness of sudden onset, characterised by fever, nervous exaltation and violent

muscular spasms involving the oesophagus and respiratory system. Once symptoms have supervened, the patient invariably dies.

Etiology :

The disease is generally transmitted either by the licking of a freshly abraded surface of skin or the bite of an infected dog.

The Virus of Rabies :

This belongs to the class of neurotropic viruses that have a special affinity for the gray matter of the nervous system. Epidemiologically two patterns are recognizable, one which occurs in wild life maintained by any types of mammal, such as, wolves, mongooses, foxes and jackals and by bats, and an urban type in which the dog alone is responsible, although during an epidemic, other domestic animals, such as, cats and cattle may be infected.

Symptoms and Signs :

The period intervening between the bite and the clinical manifestations varies from 1 to 2 months, as a rule, the limits being 11 days to over a year. Face, head and neck bits have a shorter incubation period than those on the leg. The onset is generally sudden, but prodromal symptoms are sometimes noted for a day or two before a hydrophobic syndrome appears. For convenience three stages are described :

(1) **The invasion stage.** This includes prodromal features, such as, pain in the scar, fever, headache, rapid pulse, anxiety, restlessness, insomnia irregular, and sighing respirations and phases of rushed speaking.

(2) **The stage of excitation.** This supervenes in 24-48 hours. There is intense restlessness, mental excitement, hyperaesthesia and hydrophobia which consists of sudden spasm of the muscles of the mouth pharynx and larynx and to a greater or lesser degree the whole respiratory musculature. An attack may be induced by offering the patient water. Glycosuria occurs and vomiting, exhaustion and emaciation characterise the final stage of the illness. During the paroxysm death may occur from dilatation of the heart, though sometimes near the end, the spasms ameliorate or cease altogether.

(3) **Stage of paralysis.** If the patient survives long enough, paralysis of various types, including ascending spinal paralysis, paraplegia and hemiplegia, may supervene. The patient lies helpless and exhausted, and generally dies in coma. In man, this stage is rarely seen in canine transmitted rabies, but paralytic rabies is commonly encountered in the bat-transmitted variety.

Diagnosis :

As a rule, little difficulty is experienced in diagnosis, but occasionally tetanus, the cerebral type of typhus fever, bulbar paralysis from any cause, and datura and other poisonings encountered in oriental countries may need differentiation. The behaviour of the patient at the onset of the disease can easily be mistaken for hysteria or for histrionic behaviour.

Treatment :

(1) If convulsion set in, give *Bell*.

(2) To prevent convulsions, give '*Cantharis*' in the very beginning when a person has been bitten by a mad dog. Another method to prevent convulsions is to give *Hydrophobinum 200*.

(3) Even then if convulsions continue in spite of the remedy *Bell*, give *Hyoscyamus*.

(4) For pus or any other diseased matter, give *Arsenicum*.

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